The Dock and Harbour Authority

No. 193. Vol. XVII. NOVEMBER, 1936

Editorial

Liverpool Fish Dock Scheme Falls Through.

The Ministry of Labour has informed one of the members of Parliament for Liverpool, that the Government authorities are not disposed to make a favourable recommendation on the scheme which has been put forward for establishing a fish dock at Liverpool. It was proposed to start operations with a fleet of 45 trawlers, and negotiations had been opened with the Mersey Docks and Harbour Board regarding accommodation at the docks. There are a few disused docks in the central area, and it was thought that one of these might easily be adapted for the purpose which the promoters of the scheme had in mind. No doubt the Dock Board would have been willing to provide a site, subject to satisfactory terms being arranged.

There is no doubt that the fish with which the proposed new Liverpool supplies would be in competition would be mainly British-caught fish, and consequently any success achieved by Liverpool would be at the expense of other fishing ports where a great deal of capital expenditure, in some case running into millions of pounds, has already been incurred. Since the proposition was first mooted the Liverpool wholesale fish trade has been sceptical of the practicability of the venture, which was put forward originally as a means of alleviating unemployment.

Southampton Docks.

With returns covering the first three quarters of the year completed and reflecting favourable comparison under all headings with the figures for the corresponding period of 1935, it now appears highly probable that 1936 will witness the establishment of new records for the amount of shipping tonnage entering the docks and the number of passengers dealt with. An increase of 333,000 tons was registered in the shipping entered inwards up to the end of September, thus bringing this year's aggregate tonnage for the nine months to 14,366,000 tons. Passenger traffic was substantially heavier, chiefly on account of improved North Atlantic carryings, and this advance amounted to nearly 20,000 for the period January-September, 1936, compared with the similar period in 1935.

Seasonal supplies of citrus fruit from South Africa have been very heavy this year, and the shipments, which are now diminishing as the season draws to a close in November, will probably reach an aggregate comparable to the record quantity of 1,800,000 boxes of oranges, grape-fruit, etc., received in 1935. Up to the end of September last, 1,340,252 boxes had been landed at the docks since June.

Good Features in Trade Reports from the North-East Coast.

Committee reports submitted to the meeting of the Tyne Commission in September showed that while coal shipments from the river had been lower than last year, the general revenue of the authority had increased by more than £9,000 over the previous year. In the eight months ended August 31st, the quantity of coal and coke cleared from the port was 8,712,195 tons, a decrease of 210,063 tons on the shipments in the same period of 1935. The very satisfactory fact that this decrease had been wiped out by the middle of October may be here interpolated, although figures of the clearings were not to hand at the time of writing. Bunker coals shipped in the past eight months totalled 392,594 tons, an increase of 9,751 tons on the corresponding period of last year. Regarding the shipments from the river as a whole, there had been a falling off of 837,000 tons to Italy in the eight months, but coastwise and foreign shipments had increased by 340,000 tons. There was, too, an increase in merchant traffic in the river equal to 23 per cent.

The coal shipments from Blyth Harbour for the eight months to August 31st were 4,450,987 tons, compared with 4,111,779 tons in 1935, and 3,679,043 tons in 1929, these figures showed an increase of 8 per cent. on 1935, and 21 per cent. on 1929.

The coal and coke shipments from the Port of Sunderland continue to increase. In August the figures were 304,740 tons, compared with 265,829 tons in the same month of 1935, an increase of 38,911 tons, while the eight months' total at 2,658,999 were 140,040 tons up on the same period of 1935. Imports for the eight months were down by 24,482 tons, but exports other than coal were 4,481 tons higher at 31,339 tons.

Traffic at Swedish Ports in 1935.

A report on traffic in Swedish ports during 1935 which has just been published in Stockholm, states that the number of ports amounted to 270, not including three Free Ports. Thirteen ports only had over a million tons total traffic in 1935, 40 ports had over 500,000 tons, and 75 ports more than 200,000 tons total traffic. The following table shows the development that has taken place in the thirteen largest ports during the last three years.

	1933	1934	1935
	(In 1,000 net tons)		
Gothenburg ...	11,193	12,118	13,236
Stockholm ...	8,863	9,492	10,374
Malmo	7,424	7,669	7,647
Hälsingborg ...	5,778	6,014	7,196
Trelleborg ...	3,491	3,866	4,447
Oxelösund ...	1,140	2,075	2,054
Gefle	2,279	2,677	2,822
Norrköping ...	1,554	1,771	1,773
Lulea	1,353	1,823	1,628
Kalmar ...	1,261	1,350	1,351
Landskrona ...	1,196	1,316	1,410
Sundsvall ...	1,175	1,314	1,294
Ornskoldsvik ...	874	1,006	1,020

As regards the three big ports of Gothenburg, Stockholm and Malmo, the development of traffic in 1934/35 is seen to have been particularly favourable for Gothenburg, where tonnage grew by 1,118,000 net tons, but even Stockholm shows a good advancement by 882,000 net tons. In the Port of Malmo, on the other hand, traffic was reduced by 22,000 net tons. It should be observed that the figures given for Gothenburg do not comprise fishing-vessel traffic in the fishing harbour. This traffic is rather significant; in 1935 it amounted to 44,582 vessels aggregating 748,704 tons. If we add this figure to that given in the table we find that the total traffic in the Port of Gothenburg really reached 13,985,000 tons in 1935, as compared with a corresponding figure of 12,794,000 tons the year before.

Madras Port Trust

Administration Report for 1935-36

I—General

General.

THERE was no improvement in the volume of trade passing through the port during the year under review. There was a fall in the exports of groundnuts. Unlike 1934-35 the imports of rice during the year were almost normal.

The reduction of charges on the trade passing through the port referred to in the last year's report took effect during the year under report. There was no apparent increase in trade as a result of the reduction in charges.

Value of Trade.

The value of the total trade of the Port of Madras on private account as furnished by the Collector of Customs, representing 39 per cent. of the aggregate trade of the Presidency being the same percentage as in the previous year, amounted to Rs. 2,902.17 lakhs or a decrease of Rs. 22.83 lakhs as compared with the previous year. Imports accounted for Rs. 1,691.64 lakhs and exports Rs. 1,210.53 lakhs as against Rs. 1,784.65 lakhs and Rs. 1,140.35 lakhs respectively in the previous year. Foreign traffic (imports and exports combined) increased from Rs. 2,074.36 lakhs to Rs. 2,082.10 lakhs and coasting cargo declined from Rs. 850.64 lakhs to Rs. 820.07 lakhs. These figures are exclusive of Government transactions.

Receipts.

The Board's actual revenue receipts for the year amounted to Rs. 31,46,183 a decrease of Rs. 2,47,783 as compared with those of the previous year. This decrease is partly due to the abolition of quay dues with effect from 1st April, 1935, resulting in a reduction of about Rs. 1,71,741 in charges on trade passing through the port.

Working Expenses.

The gross expenditure of the year was Rs. 32,05,921 as compared with Rs. 30,31,734 of the previous year. Excluding from the gross expenditure the interest on loans which amounted in the year to Rs. 7,53,726, contribution to Reserve Funds, Rs. 5,22,029, repayment of debt, Rs. 1,30,780, Sinking Fund, Rs.77,596, surplus amount retransferred to Provident Fund Rs. 1,13,172, and omitting from the receipts a sum of Rs. 1,50,000, contributed from the Madras Port Fund, the actual working expenses came to 53.69 per cent. of the income as against 51.26 per cent. in the previous year. If no credit had been taken for the surplus amount of Rs. 1,13,172 transferred from the Provident Fund Account to the Board's Revenue Account during the previous year in accordance with the old Provident Fund Regulation 25, the actual working expenses during 1934-35 would have been 54.59 per cent. of the income. But for the abolition of quay dues with effect from 1st April, 1935, resulting in a decrease in receipts amounting to about Rs. 1,71,741, the actual working expenses of the year 1935-36 would have been 50.78 per cent. of the income as against the corrected percentage of 54.59 of the previous year.

Sinking Fund.

A sum of Rs. 77,596 was contributed during the year towards the sinking fund for the repayment of the Sterling Loan of £330,000 raised in the London market in 1923. The total amount of securities that stood to the credit of the sinking fund at the end of the year was £99,122 17s. 9d.

Outstanding Loans.

The outstanding amount of loans due to the Secretary of State for India in Council was Rs. 1,10,76,973 at the close of the year under review.

II—Traffic

Imports and Exports.

The total tonnage of imports and exports which passed through the harbour during the year under review was 1,019,560 tons or a fall of 12.02 per cent. from the previous year, the tonnage for the previous six years being 1,158,876 tons in 1934-35; 1,009,192 tons in 1933-34; 1,010,890 tons in 1932-33; 1,155,748 tons in 1931-32; 1,262,407 tons in 1930-31 and 1,516,563 tons in 1929-30.

Imports Generally.

The total tonnage of imports during the year was 771,305 tons, a decrease of 11.56 per cent. on the previous year.

Cement.

Of the total quantity imported, viz., 5,794 tons, 98.4 per cent. came from Europe.

Timber.

The total tonnage of teak wood imported has advanced from 18,968 tons to 19,072 tons. Of this quantity, 18,619 tons came from Rangoon as against 18,360 tons in the previous year.

Textiles.

The imports of raw cotton and twist and yarn have advanced from 1,915 and 4,127 tons to 3,985 and 5,160 tons respectively. The imports of other textiles and cotton manufactures (piecegoods) have fallen from 7,060 and 7,599 tons to 5,925 and 7,313 tons respectively.

Dyeing and Tanning Substances.

Tanning substances consisting mainly of wattle bark from Africa showed a very slight fall, the figure for the current year being 13,815 tons as against 13,886 tons of the previous year.

Motor Cars and Cycles, ordinary.

The number of motor cars imported during the year was 1,259 as against 1,396 in 1934-35, 1,328 in 1933-34 and 1,044 in 1932-33. Of this number, 134 came from America, 836 from Europe and 238 from Bombay. The imports of ordinary cycles and parts and accessories of cars and cycles advanced from 9,226 to 9,836 tons. Of this quantity, 41.6 per cent. came from Europe, and 47.9 per cent. from America.

Mineral Oils.

The aggregate tonnage of several kinds of mineral oils imported into this port advanced from 172,928 tons to 182,725 tons. Imports of kerosene oil in bulk have fallen from 67,157 to 65,150 tons. Of this quantity, 49,866 tons came from Rangoon, 12,279 tons from Batoum (Russia) and 3,005 tons from the East Indies: Imports of Petrol (Benzine) have fallen slightly from 40,847 to 40,142 tons. Of this quantity 37,104 tons came from Rangoon and 3,038 tons from Batoum (Russia). Imports of fuel oil (liquil fuel) have advanced from 57,153 to 70,593 tons. Of this quantity 40,610 tons came from Abadan (Persian Gulf), 26,066 tons from Balik Papan (Borneo) and 3,837 tons from Batoum (Russia).

Sugar.

The imports of sugar declined from 10,510 tons to 4,650 tons.

Rice and Food Grains.

The imports of rice during the year have fallen from 175,252 tons to 112,971 tons. Of this quantity, 99,146 tons came from Burma, 9,479 tons from Siam, 3,457 tons from Haiphong and 338 tons from Calcutta. The imports of other food-grains including pulses and flour have fallen from 46,994 tons to 39,078 tons.

Manures.

The total tonnage of chemical manures imported has advanced from 25,199 tons to 32,049 tons.

Coal.

The tonnage of coal imported into the port during the year amounted to 96,313 tons or a decrease of 34.8 per cent. on the previous year.

	1935-36 Tons	1934-35 Tons	1933-34 Tons	1932-33 Tons	1931-32 Tons	1930-31 Tons	1929-30 Tons
Imports by rail ...	—	—	13,790	15,320	12,214	14,768	14,609
Imports by sea ...	96,313	147,831	114,789	171,402	220,993	237,019	317,110
Quantity bunkered	8,521	19,115	5,895	16,207	11,641	24,578	30,850
Coal transhipped in the harbour	—	1,563	14,992	17,008	14,415	16,298	14,645
Coal booked from the harbour by rail	75,923	97,869	108,488	161,442	217,386	202,358	258,096

Madras Port Trust—continued

Metals.

The imports under this head have fallen from 36,617 tons to 31,060 tons.

Exports Generally.

The aggregate tonnage of goods shipped from this port during the year under review amounted to 248,255 tons against 286,718 tons of the previous year or a fall of 13.41 per cent.

III—Matters of Interest

Railway Working.

The railway traffic handled during the year under review amounted to 371,216 tons broad gauge inwards and outwards, and 89,393 tons metre-gauge inwards and outwards, aggregating in all 466,609 tons. The harbour terminals and the freight collected on behalf of the two connected railways on the above traffic for the past four years are given below:—

	1935-36		1934-35		1933-34		1932-33	
	M. & S.M. Ry.	S.I.Ry.	M. & S.M. Ry.	S.I.Ry.	M. & S.M. Ry.	S.I.Ry.	M. & S.M. Ry.	S.I.Ry.
Number of wagons	28,852	11,771	31,224	13,606	33,615	12,936	30,247	14,428
Tonnage	371,216	89,393	389,373	109,510	429,989	105,219	407,688	98,034
Freight	Rs. 29,22,326	3,41,005	32,65,087	3,00,271	39,84,509	2,71,832	30,78,849	5,33,454
Harbour terminals	Rs. 1,63,570	45,060	1,84,797	47,868	1,94,900	57,394	1,80,554	55,264

Bunkers.

During the year 8,524 tons of coal and 22,919 tons of liquid fuel were shipped for bunkers. A comparative statement showing the quantity shipped during the past six years is given below:—

	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31
	Tons	Tons	Tons	Tons	Tons	Tons
Coal	8,524	19,115	5,395	16,207	11,641	24,578
Liquid fuel ...	22,919	19,546	18,688	20,749	20,192	22,442

Ores.

The shipment of this commodity fell from 12,492 tons to 11,357 tons or by 9.09 per cent. The following table shows the shipment of the several kinds of ores during the past seven years:—

	1935-36	1934-35	1933-34	1932-33	1931-32	1930-31	1929-30
	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Chrome ore ...	6,223	8,555	3,750	6,825	2,500	8,750	8,113
Magnesite ...	4,070	3,915	4,353	4,695	3,891	5,201	8,995
Others ...	1,064	22	—	32	106	—	50
Total ...	11,357	12,492	8,103	11,552	6,497	13,951	17,158

Groundnuts.

The tonnage of this staple commodity of the Madras Presidency shipped at the port amounted to 116,242 tons or a decrease of 33.3 per cent. on the previous year. Europe took 90.2 per cent. of the total quantity shipped.

Tanned Hides and Skins.

The shipment of this commodity has advanced from 18,589 tons to 24,725 tons. Of this quantity, 87.1 per cent. was shipped to Europe.

Raw Cotton.

The exports of raw cotton have fallen from 9,586 tons to 9,067 tons.

Kerbstones.

The shipment of kerb stones from the port has advanced from 6,102 tons to 10,646 tons.

Scrap Iron.

There was an increase in the shipment of scrap iron from the port, the figure for the current year being 10,091 tons.

Onions.

The shipment of this commodity advanced from 10,952 tons to 13,932 tons.

Shipping.

The largest quantity of cargo shipped on any one day during the year was 3,622 tons of groundnuts on 17th March, 1936, in S.S. "Pierre L.D."

Singapore Mail.

From the month of October, 1935, onwards, it has become the usual practice to berth the Singapore Mail on arrival at the West Quay instead of putting her first at the South Quay for discharge of her passengers. The arrangements made for the passengers on the West Quay have proved satisfactory and the ship has been saved some delay and an extra move in the harbour. This can only be done when the passengers' baggage does not require disinfection as the disinfecting plant is at the South Quay.

Cranes.

A new 10-ton electric crane was brought into use on the South Quay on the 1st August, 1935. This crane is a very fast worker and has a specially long jib which gives her a reach of eighty feet and enables her to plumb the holds of ships lying at the South Quays.

New Quay.

Two screw pile jetties with concrete decking have been built on the south side of the harbour east of the existing South Quay. These two jetties form one ship berth. The old South Quay is now known as South Quay I. and the new jetties as South Quay II. The latter berth was first used for S.S. "Ethiopia" from Rangoon on the 9th of March, 1936.

In addition to the jetties a transit shed has been erected for the accommodation of cargoes of ships berthed at South Quay II.

Bonded Warehouses.

The bonded warehouse has been used by importers to an increasing extent and part of "Y" warehouse has been reserved for goods in bond to supplement the two compartments in "X" warehouse and the old Anchor Gate warehouse already in use for such goods.

Reduction of Charges.

A general reduction of charges on goods chiefly consisting in the abolition of quay dues was brought into force from the 1st April 1935. This reduction has involved the Trust in a loss of revenue amounting to Rs. 1,71,741 during the year under review.

Traffic at South Africa's Principal Harbours

The figures for the shipping and cargo dealt with during the month of July in the four principal harbours of the Union show a marked increase over the figures for the corresponding month last year. In Capetown 273 vessels arrived, which is 112 more than last year, and in Durban 644, which is 16 above last year's number. At Port Elizabeth and at East London the figures are slightly lower, being 86 and 99 respectively, compared with 89 and 103 in 1935, but in the aggregate the increase amounts, for the four ports, to 121 vessels. Expressed in terms of tonnage the increase is one of 318,653 net registered tons, which is spread over all four ports. The figures rose most in Durban, where the net registered tonnage of vessels calling at the port amounted to 606,070, as compared with 502,315 in the same month of the previous year. Capetown showed an increase of 91,288 tons, Port Elizabeth one of 55,552 tons, and East London a rise of 72,058 tons.

The records dealing with the cargo handled show that in Capetown 99,975 tons were landed, and 45,683 tons shipped, which compares with 113,255 tons and 28,250 tons in July, 1935, and the corresponding figures for the other ports are:—Port Elizabeth 51,366 tons and 24,457 (48,080 tons and 23,009 tons); East London 35,155 tons and 10,931 tons (34,712 tons and 5,982 tons); and Durban 148,661 tons and 239,514 tons (114,856 tons and 443,384 tons).

A large programme of new works is being carried out at several ports of the Union, involving a total expenditure of £3,789,002. In Durban additional deep water berths will be provided, Island View Channel will be deepened, and sections of Maydon Wharf are being renewed. A new bucket dredger and a 3,000-ton floating dock are also included in the schemes for this port. At Port Elizabeth a new harbour is to be constructed, the south breakwater completed, while the Dom Pedro jetty will be closed in.

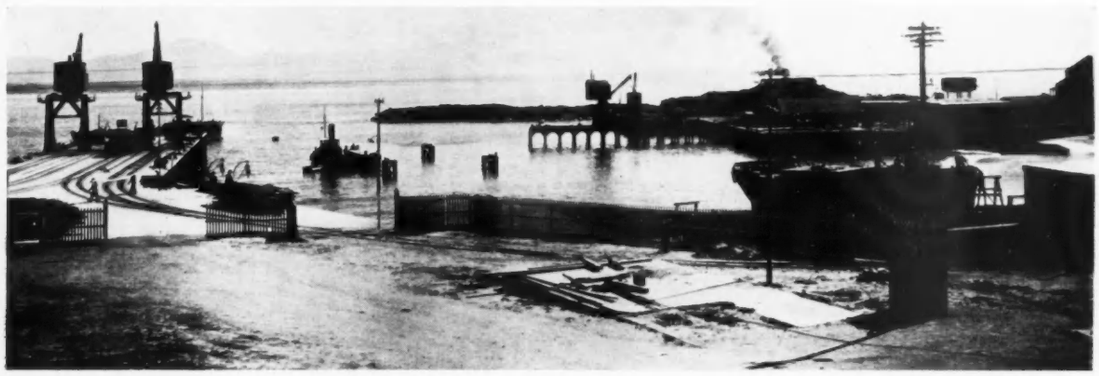
The Minor Ports of the Union of South Africa and of South-West Africa

(CONTINUED)

Brief Descriptions, and Trade and Shipping Statistics of the following Harbours:
Mossel Bay, Port Alfred, Port St. John, Port Shepstone, Knysna, etc.

By ARTHUR MARKOWITZ

With grateful thanks for the assistance given in the compilation of this article by the Technical, Publicity, and Shipping Staffs of the South African Railways and Harbours Administration



Photo] *The Harbour, Mossel Bay.* [South African Railways and Harbours

Mossel Bay

MOSSEL BAY is situated 242 miles by sea East of Capetown, and is one of the very few sheltered bays on the South-East coast of Africa. It was, therefore, frequently resorted to in the past as a haven of refuge by sailing vessels when met by heavy Westerly and North-Westerly winds.

The artifical harbour of Mossel Bay has been constructed at a sandy cove in the bay, at a cost to date of over £174,000. The harbour is formed by a breakwater and two jetties (Lat. 34 11′ S., Long. 22 09′ E.) which adjoin the township of Mossel Bay. The town has a population of about 5,000 and is the natural port for the central division of the Cape Province. Fruit, wool, and other agricultural produce, as well as fish, constitute its exports. Ocean-going vessels anchor approximately a mile off shore, their cargoes being conveyed to and from the shore by lighters.

The wharfage consists of two jetties and two quays. No. 1 Jetty (exclusive of pile work approach from abutment, which has a length of 130 feet) is 350 feet long with a depth of 10 feet alongside at L.W.O.S.T. It is equipped with two 4-ton steam cranes and one 2-ton hand crane. No. 2 Jetty is 120 feet long with a depth of 8 feet alongside. It is fitted with one 3-ton steam crane.

No. 1 Quay extends 100 feet on either side of No. 2 Jetty, and has a depth of 6 feet alongside. No. 2 Quay extends from No. 1 Quay to the breakwater. It has a length of 250 feet with a depth alongside at L.W.O.S.T. of 6 feet. There is one steam crane with a lifting capacity of ten tons.

The railway station and the goods sheds are situated at the root of No. 1 Jetty, and rail tracks are laid from the jetty to connect with the main system. The passenger landing steps are also on Jetty No. 1.

The shed and storage accommodation at Mossel Bay has a total floor space of 13,300 square feet, and a capacity of 206,000 cubic feet.

The Bay provides a safe open anchorage with unlimited depth.

Ten lighters of an aggregate capacity of 1,130 tons are provided, and the port is equipped with one tug, fitted with modern salvage and fire appliances. Repairs can only be executed on small craft, there being a slipway with a capacity of 250 tons dead-weight.

The principal commodities exported from Mossel Bay during the past two years were:—

	1934-35	1933-34
Citrus fruit, cases	7,047	6,458
Aloes, cases	3,606	3,856
Pigments, tons	2,943	2,630
Tobacco, bales	2,751	392
Wool, bales	981	2,907
Skins, bundles	747	1,266
Boxwood, tons	664	588
Ostrich feathers, cases ...	135	174

Mossel Bay Trade and Shipping.

CARGO LANDED (Harbour tons)

	1934-35	1933-34
General Cargo	24,792	23,748
Timber	5,713	2,432
Oil Fuel	3,715	3,672
Railway Material ...	—	604
Totals ...	34,220	30,456

CARGO SHIPPED (Harbour tons)

	1934-35	1933-34
General Cargo	1,859	2,335
Timber	29	—
Produce	2,125	4,053
Wool	431	1,097
Skins and Hides	228	551
Citrus Fruit	399	382
Coal Bunkered	1,550	1,800
Oil Fuel	29	2
Ores and Minerals	2,943	—
Totals ...	9,593	10,220

Photo] *River and Landing Stage at Port St. John.* [South African Railways and Harbours

MOSSEL BAY HARBO

UNDER THE JURISDICTION OF THE SOUTH AFRICAN RAILWAYS & HARBOURS ADMI

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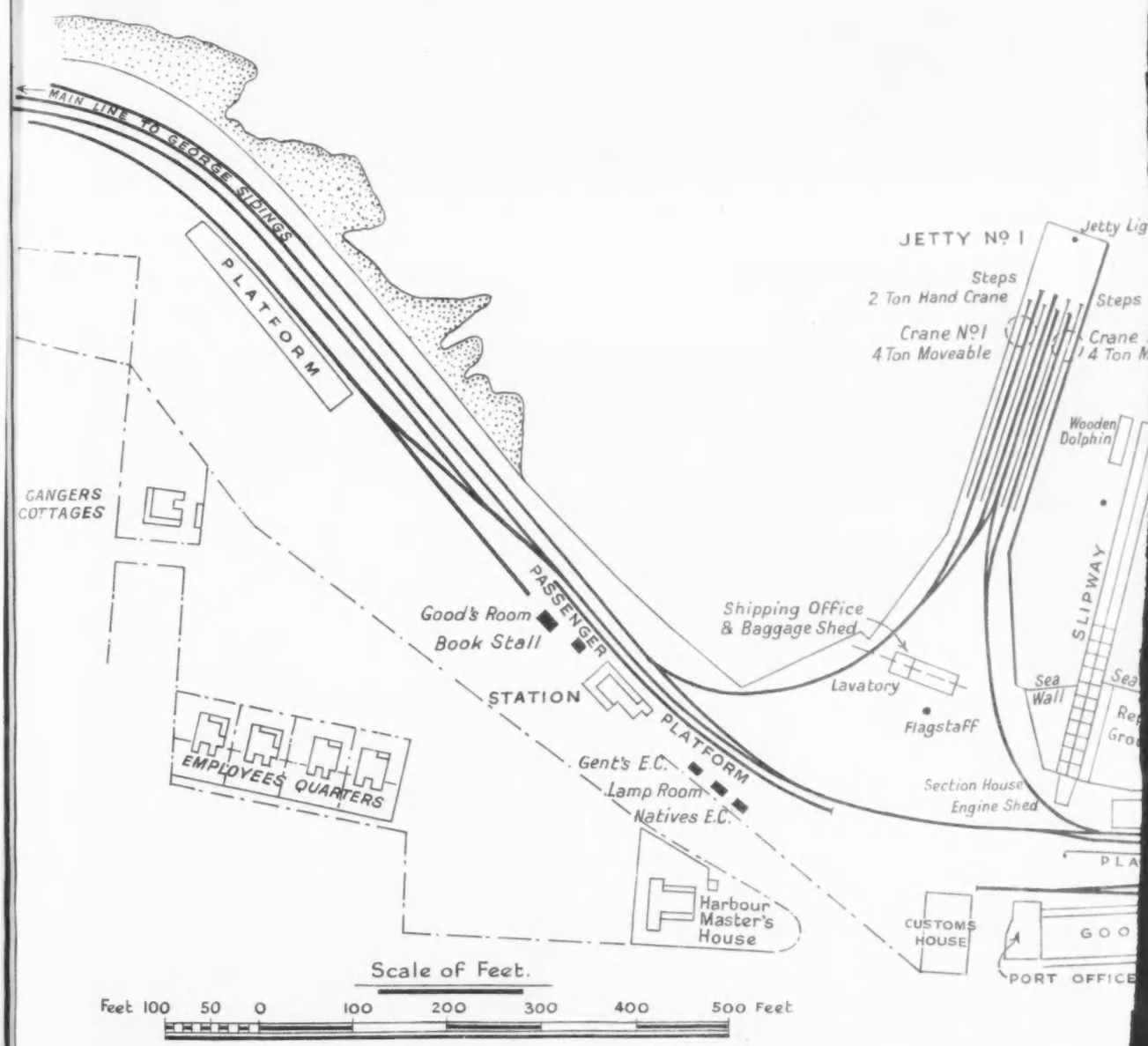

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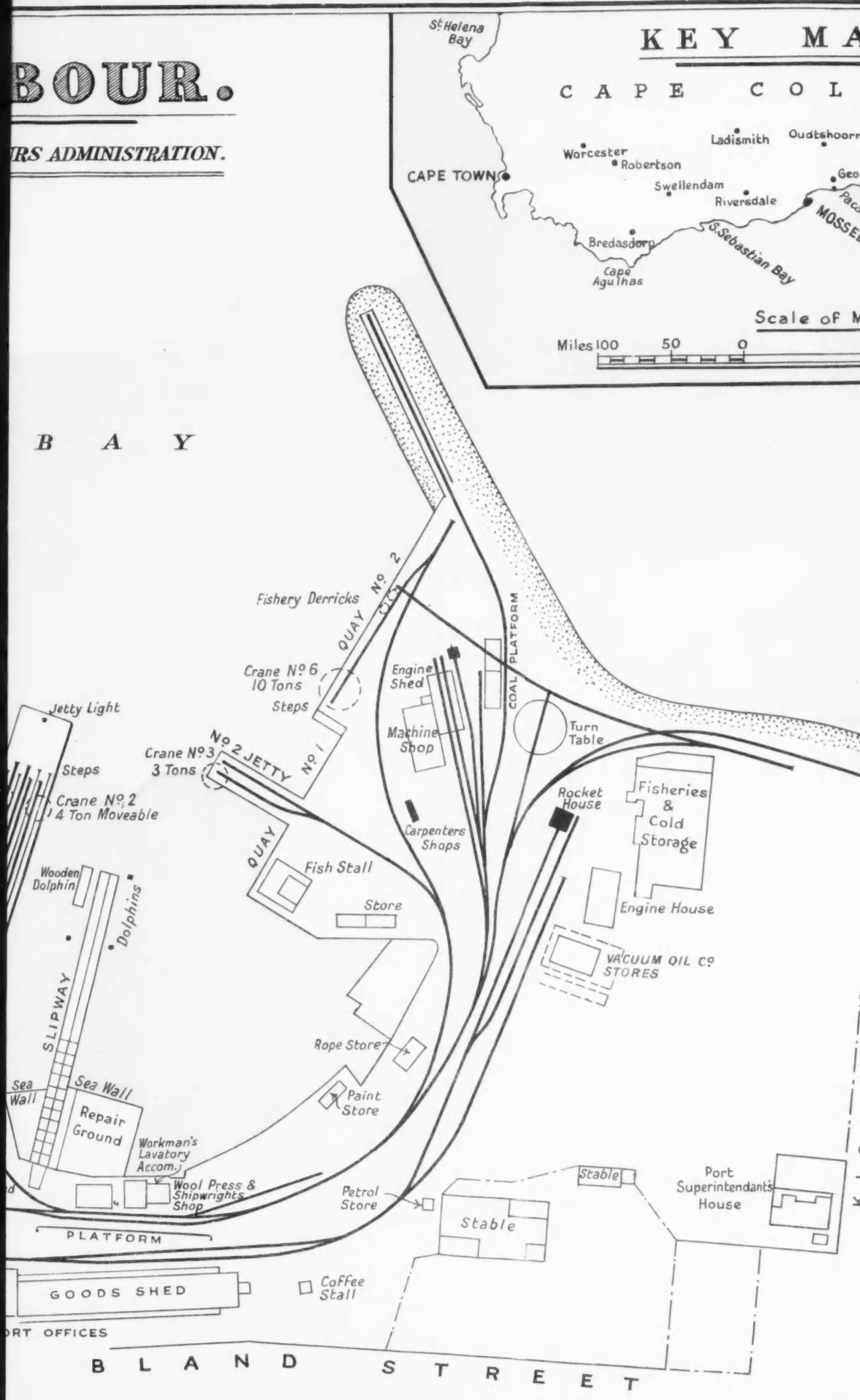

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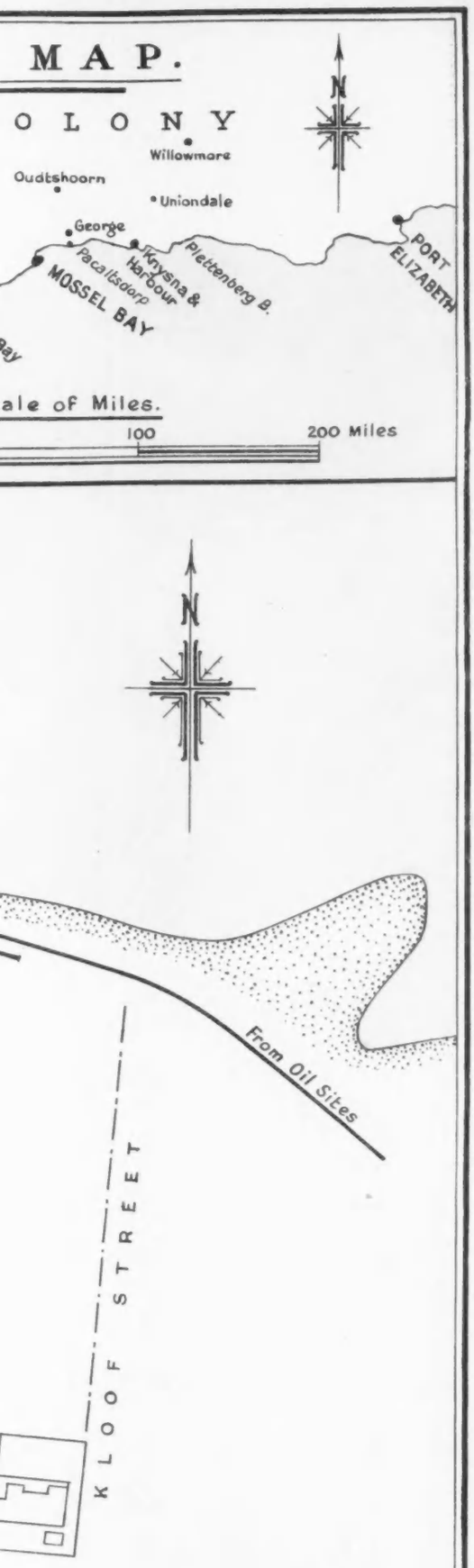
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Minor Ports of South Africa

Photo] *The Wharf, Mossel Bay.* [South African Railways and Harbours

Photo] *Off-loading Sleepers at Mossel Bay.* [South African Railways and Harbours

Minor Ports of South Africa—continued

SUMMARY.	1934-35	1933-34
Landed (Harbour tons) ...	34,220	30,456
Shipped	9,593	10,220
Totals ...	43,813	40,676

In addition 148,600 gallons of water were supplied in 1934-35 as compared with 220,132 gallons during the previous year.

PASSENGERS.	1934-35	1933-34
Landed	231	244
Embarked	156	165
Totals ...	387	409

215 vessels called at Mossel Bay during 1934-35, as compared with 228 during the previous year, but the total tonnage was bigger, viz :—

	1934-35	1933-34
Net Registered Tonnage	874,624	854,165
Gross Registered Tonnage	1,445,750	1,412,359

point of view the harbour at Port Alfred does no longer exist financially, but the Commerce and Industries Department of the Union Government has now decided to re-build it as a fishing harbour.

The Port Alfred Chamber of Commerce has consistently agitated against the complete abadonment of the harbour, and at the beginning of the present year (1936) its endeavours were crowned with success, when notification was received from the authorities that the Government had accepted a tender, amounting to £25,575, for the construction of the first portion of Port Alfred's new fishing harbour.

Port St. John

Port St. John (Lat. 31 37′ S., Long. 29 33′ E.) is at the mouth of the Umzimvubu river which discharges into the ocean about 150 miles South of Durban. It is a small settlement which has no railway communication with the rest of the Union, and which is of rather more importance as a holiday resort than as a port.

The harbour works consist of a wooden wharf which is situated at the Western bank of the river, near the entrance. It has a length of 165 feet with a depth alongside which varies with the currents from 5 feet to 9 feet. The wharf is equipped with cargo sheds and a hand derrick capable of lifting two tons.

Due to a recurring accumulation of silt along the banks of the river, it has at times been impossible to obtain a sufficient depth of water in which to moor vessels at the wharf. To overcome this difficulty the Railways and Harbours Administration has decided to extend the wharf 30½ feet nearer the river channel, over a length of approximately 80 feet. At the time of writing this work is about to be commenced.

During the year 1934-35, twenty-seven small motor vessels called at the port, as compared with twenty-two during the previous year. The gross registered tonnage was 4,445 in 1935 and 3,586 in 1933-34.

Cargo landed during 1934-35 weighed 3,247 harbour tons, and 1,336 tons of miscellaneous cargo, including 137 tons of marble quarried in the vicinity, were shipped.

The number of passengers who landed at Port St. John was 17, and those who embarked numbered 20.

Photo] ***General View of Port Alfred.*** [South African Railways and Harbours

Knysna Harbour

Knysna is a small port formed by the estuary of the Knysna river which discharges into the sea between two steep headlands, about 50 miles East of Mossel Bay. The port is at present only used by coasting vessels, although larger craft can be safely accommodated, provided their draught does not exceed 14 feet at L.W.O.S.T.

The harbour works (Lat. 34 03′ S., Long. 23 03′ E.) consists of a reinforced concrete wharf 400 feet in length by 30 feet in width. Opposite the wharf, for a width of about 300 feet, there is a depth of 20 feet and upwards at low water spring tides. The wharf, which is equipped with a cargo shed 140 feet by 25 feet, and a 3-ton crane, is served by a railway connecting it with Knysna station and all parts of the Union. There is also a jetty with a depth alongside of about 12 feet, but it is not used for harbour work.

A fairly strong current runs along the wharf. This prevents siltage and the present depth is maintained without artifical aid.

The port was examined and reported upon by Sir John Coode in 1877 and by Mr. Wilson of Messrs. Coode, Fitzmaurice, Wilson and Mitchell, in 1925, but no suggestions were made for new works, as it is held that the facilities are adequate. There is, however, ample room for extension, both upstream and downstream, for such purposes.

Twelve coasting vessels called at Knysna during 1934-35, landing 3,082 tons of general merchandise, an increase of 301 tons, and shipping 1,891 tons of miscellaneous cargo, as against 1,364 tons the year before. The chief export article of the port is timber, which is obtained from the large forests in the district.

Port Alfred

Port Alfred is situated at the mouth of the Kowie river about half-way between Port Elizabeth and East London. The mouth of the river is fully exposed to gales, and there are no projecting headlands affording shelter of any description. Training walls and breakwaters were erected towards the end of last century, and an amount of well over a quarter of a million was expended. At that time the trade of the port was on the increase. The customs revenue rose from £3,200 per annum in 1871 to about £30,000 in 1876.

Owing, however, to the want of depth over the entrance bar, and, more particularly, the competition by Port Elizabeth, the trade of Port Alfred diminished, and eventually disappeared completely.

The harbour works were abandoned and allowed to crumble away, and the Railways and Harbours Administration has recently written off as dead assets the amount of £318,980 previously expended on the harbour. From the Administration's

Port Shepstone

In 1882 the Government of the Crown Colony of Natal took the first step towards developing a harbour at the mouth of the Umzimkulu river, by constructing a training wall along the West bank of the river.

At a later date a substantial timber wharf was built at a cost of some £50,000, but the work was neither continued nor maintained.

In 1914 a Government Commission reported favourably on the establishment of a fishing harbour at Port Shepstone, which is some 50 miles South of Durban. In 1927 another Commission was appointed and again reported in favour of harbour development. No work was, however, undertaken at that time. In 1935 the Railways and Harbours Administration relinquished its jurisdiction over the harbour and wrote out of its capital account the sum of £84,587 hitherto spent.

At the beginning of the year (1936) the Government decided to spend £73,000 on national fishing harbours, and included in this work was a plan to make Port Shepstone safe. The population of the village is eagerly looking forward to the promised development as the best fishing grounds along the Natal coast are opposite Port Shepstone.

Other Minor Harbours

Other minor harbours over which the South African Railways and Harbours Administration have jurisdiction are Kalk Bay, Plettenberg Bay, Storms River, Hermanus, and Hondeklip Bay. At these, however, there is no port activity of any description.

The Panama Canal

Improvement to System of Diesel Oil Lines at the Port of Cristobal

IN addition to an expenditure of $102,000 for the installation of facilities for providing Piers 15, 16 and 18 at Balboa with Diesel oil, the Panama Canal has announced that it will spend $78,700 for improving its system of Diesel lines at the Port of Cristobal so as to have two separate lines at Piers 7 and 8 in order to provide ships with either heavy or light oil.

During the past few years there has been an increasing demand at Cristobal for light Diesel oil for bunkering, which together with the regular requests for heavy Diesel oil, has necessitated the handling of two distinct grades of oil through the single existing pipe-line system. The present line, reaching from Mount Hope to the Cristobal Docks, is about two miles long, and holds about 1,500 barrels of oil.

The inconvenience to shipping lines has been caused by the fact that when a vessel docks at Pier 7 or 8 it is either obliged to accept 1,500 barrels of the heavy oil in the line before being able to receive the desired light oil, or shift to Dock 16 for the light oil, a movement which involves extra cost and loss of time.

With the introduction of the new system, which will probably be finished by the end of December, heavy oil can always be retained in one line and light oil in the other.

The table below records the increased total tonnages, from year to year since 1919, of Diesel motorships and steamers which burn oil as fuel:—

Year	Motor Ships (Diesel) Gross Tons	Steamers Burning Fuel Oil Gross Tons
1919-20	752,606	5,336,678
1920-21	955,810	9,359,334
1921-22	1,248,800	12,796,635
1922-23	1,540,463	14,464,162
1923-24	1,666,385	15,792,418
1924-25	1,975,798	17,154,072
1925-26	2,714,073	17,804,122
1926-27	3,493,284	18,243,539
1927-28	4,270,824	18,481,759
1928-29	5,432,302	19,053,014
1929-30	6,628,102	19,420,895
1930-31	8,096,337	19,857,788
1931-32	9,431,433	20,002,307
1932-33	10,038,377	20,135,006
1933-34	10,200,392	20,035,273
1934-35	10,604,526	19,857,711

It is pointed out that there were only 912 Diesel motorships in 1920, a total which increased to 4,941 by 1935. During the last year there has been an increase of 700,000 tons in the total tonnage of motorships. Of the total tonnage of oil tankers of 1,000 tons gross or over, amounting to 8,896,437, it is known that 3,739,095 tons represent the total displacement of ships using internal combustion engines.

Another table shows the increased number of commercial motorships transiting the Panama Canal during the past six years:—

Year	Steamers	Motorships
1930	4,752	1,411
1931	3,932	1,571
1932	2,989	1,444
1933	2,695	1 527
1934	3,489	1,790
1935	3,386	1,753

The improved facilities will consist of a 10-inch Diesel oil line from the manifold at the Mount Hope Oil Handling Plant to Pier 7, and an 8-inch line with twelve risers of 6-inch pipe and valves placed along the north face of Pier 8. Connections will be made to the existing oil lines now serving Piers 7 and 8.

The new system of lines will be of extra heavy wrought iron screw pipe. The hook-up at the Oil Plant will connect the new line to pumps 1, 2 and 3, through an addition to the manifold equipment. Valves will be installed in the line every 1,000 ft.

Before the project, which is being undertaken by the Municipal Engineering Division, was approved by the Governor, the Marine Division made a special study to determine the advisability of completing the work at this time.

Its report, which recommended action at the earliest practicable date, is considered of particular interest to shipping men because it contains a number of tables showing the rapid development of ships using Diesel oil.

The following table, for example, reveals the trend of world shipping from coal to fuel oil for purposes of propulsion:—

	Percentage of Total Gross Tonnage	
	1919	1935
Coal	88·84	50·15
Oil Fuel for boilers	3·65	30·65
Oil for Diesel Engines (Internal Combustion)	·45	17·42

The foregoing table shows that 48 per cent. of the world's tonnage now uses fuel oil for propulsion. It also reveals that the 17.42 per cent. now employing Diesel oil represents a notable increase since 1929.

When reduced to percentages the above classifications were as follows:—

	1931	1932	1933	1934	1935
Steamers ...	71·1	67·0	63·2	65·6	65·4
Motorships ...	28·4	32·4	36·4	33·9	33·8
Miscellaneous ...	·5	·6	·4	·5	·8

The steady increase in the amount of Diesel oil used throughout the world is reflected in the fact that the Mount Hope Plant alone has increased its output from 167,702 barrels in 1932 to 543,791 barrels in 1935.

Finnish Icebreaker Service.

With reference to the information circulated on 24th April regarding the findings of a special Government committee set up for the purpose of advising the Government on the construction of icebreakers, according to the press the President of the Republic has now sanctioned the presentation to Parliament of a Bill for the provision of the smaller of the two vessels recommended by the committee.

By the terms of the Bill the sum of Fmks. 36 millions is to be appropriated from 1936 budgetary funds to finance the construction of the ice-breaker. The vessel is to be equipped with Diesel electric engines, and is to be used in the winter in the Abo archipelago, and will be employed in the autumn and spring in the harbours of the Gulf of Bothnia, south of Uleaborg.

The Institution of Civil Engineers.

The opening meeting of the Session takes place on the 3rd November, when Sir Alexander Gibb, G.B.E., C.B., F.R.S., delivers his Presidential Address. The important part that engineering plays in connection with road design and safety is shown by the fact that three meetings are allotted for this subject. The first was a special joint meeting on the 28th October with the British Section of the Société des Ingénieurs Civils de France, when Monsieur J. Greber presented a Paper on "A Study of the System of Underground Road-Crossings in Paris." Major Cook, of the Ministry of Transport, deals with road design and road safety in a Paper on the 10th November, whilst at an informal meeting the subject of "Methods of Providing Permanent Non-Slip Surfaces for Roads" is discussed.

The experience gained in Holland, with its many canals, is drawn upon in the Paper on "Ship Canals utilised for Drainage," by Dr. Wentholt; the construction of the Lower Zambesi Bridge in Portuguese East Africa, which linked up the existing railway system from the Port of Beira to Blantyre in the British Protectorate, Nyasaland, is described in Papers by Messrs. Handman and Howorth, who were the engineers on the work. Experiments carried out in connection with prestressing bridge girders in India is described by Mr. Nichols, who also gives a short account of the building of the Silver Jubilee Bridge at Broach. The results of reclamation schemes in Greece are dealt with in a Paper on "The Salonika Plain Reclamation Scheme" by Mr. Huntsman and on "Lake Copais, Boeotia, Greece; its Drainage and Development" by Mr. Dean.

The programme is completed by a Paper by Mr. Raymond Carpmael, Chief Engineer of the Great Western Railway, on "The Maintenance of Waterways to Harbours and Docks."

Liverpool Docks and Transport

LT.-COL. R. AINLEY, O.B.E., R.E., of the Traffic Department, Mersey Docks and Harbour Board, gave an address recently to the Liverpool Branch of the Industrial Transport Association on "Liverpool Docks and Transport Facilities."

Prior to the lecture a cinematograph film was projected on to a screen to show the amazing traffic ramifications and facilities of the port of Liverpool.

Lt.-Col. Ainley explained the Dock Board Estate comprised 65 wet docks and 21 graving docks, covering an area of 658 acres and a land area of 1,400 acres. The maximum number of vessels which could be accommodated at any one time in the wet docks was 151 foreign-going and 65 coasters, in addition to a large amount of open quay accommodation for vessels with rough cargoes.

In the year which ended on 1st July, 14,500,000 tons of goods were loaded and discharged in the Board's docks, approximately 9,250,000 being import traffic and 5,250,000 export traffic.

For the discharging and loading of vessels the Board had provided about 350 cranes of varying capacities, 122 of which are electrically operated, about 20 steam and the balance hydraulic. There were also five floating cranes capable of dealing with loads from 25 tons up to 200 tons. In addition to the above, there was also a large number of grain elevators, and other special plant, provided by the steamship owners, the master porters, and other private individuals, for dealing with special cargoes.

For the purpose of loading off cargoes from the quay, the Board had provided approximately 750 hand-lowering jiggers for dealing with goods from the upper floors of sheds, and for dealing with the delivery of cargo from the ground floors the Board had provided a number of steam and electric loading-off cranes, in addition to which there were approximately 200 cranes of varying capacities provided by steamship owners and master porters.

With regard to the disposal of foreign inward cargo, approximately four million tons were removed by road vehicles, about 2½ millions by coasters and barges and the balance by rail.

"Although there are a good many departments which are all under the control of and responsible to the General Manager in the Mersey Docks and Harbour Board," stated Lt.-Col. Ainley, "I would like to tell you a little about my own department—the traffic—which was established originally to maintain the free flow of traffic through the port, and has the supervision of all traffic passing over the dock quays. The executive staff consists of the Chief Traffic Manager, two principal assistants and seven district traffic managers. The district traffic managers are located in offices at the docks, and each has certain specified areas under his control.

"The actual work of handling cargo discharged on to the dock quays is not done by the Board, but by master porters who are licensed by the Board for that purpose. These men are responsible to the Board, the shipowners and to consignees for the goods committed to their care. They have to receive them from the ship, weigh if necessary, stow to mark on the quay, watch and subsequently deliver to the consignee when applied for, and to make returns daily to the Traffic Department of all goods landed and delivered. The charges made by the master porters for the work done by them are strictly regulated by the Board.

"Each district traffic manager visits every ship's berth in his district daily in order to ascertain whether the work on the quay is being satisfactorily carried out, and whether any difficulty is being experienced in the removal of goods from the Quay sheds, and in the event of it being found that from some cause or other, traffic is not moving freely and the discharge of any vessel is being impeded, or the removal of other goods from the quay is or may be delayed, the circumstances are at once brought to the notice of the Chief Traffic Manager who is authorised to put into operation the ample powers which the Board have for warehousing goods from the Dock quays."

About 73 per cent. of import traffic was taken direct to local warehouses, factories and mills, and only about nine per cent. went away immediately by rail, of which rather more than half was carted into the railway stations.

Export cargo was conveyed to the ship's side in railway wagons, by road vehicle, or by barge. At Liverpool the railway wagons were hauled by the Dock Board and were unloaded by the ship owner. Cart traffic was delivered to the export quay by the carter. At Birkenhead the work of delivering export cargo to ship's side, either by railway wagon or cart, was mainly done by the railway companies.

The Traffic Department had charge of the appliances for the shipment of coal at Liverpool and Birkenhead. In normal times about three million tons of coal was shipped annually, of which about 2½ million tons were used as bunker, and the balance as cargo coal. Owing to the introduction of oil fuel this tonnage had dropped considerably, 1,213,727 tons being shipped last year.

The Traffic Department had also the superintendence of the Woodside and Wallasey Lairages at Birkenhead, which were set apart for the Irish cattle trade. This trade, which was the most extensive of its kind in the country, had lairage accommodation for 6,430 head of cattle and 12,300 sheep, with extensive slaughterhouses and chill rooms with a capacity for 3,280 carcases. In the year ended 1st July, 1936, 277,989 cattle, 24,191 pigs and 235,191 sheep were landed at the Mresey Cattle Wharf.

With the object of cheapening the transit of import and export traffic through the port, an agreement was made between the various railway companies running into Liverpool and the Board. The haulage of traffic in railway wagons under this agreement commenced in October, 1905. The arrangement for the purpose of enabling traders to have their goods for export hauled in railway wagons alongside the quays, and the import traffic hauled into the stations, the haulage between the docks and the stations being undertaken by the Board at a nominal figure, thus saving the cost which would otherwise be incurred for the cartage of the traffic to or from the stations.

"The tonnage hauled under the agreement," continued Lt.-Col. Ainley, "has increased steadily from the date of its inception to the present time, as the following comparative figures show:—

Year	Loaded Wagons	Tons
1906	10,066	52,099
1930	167,742	743,055
1936	180,715	1,038,744

The total length of railway line on the Dock Estate (excluding the main dock lines running from south to north along the whole length of the Dock system) had increased from 11 miles in 1905 to approximately 75 miles at the present time and there were ample facilities for the storage and movement of all classes of railway stock."

In regard to export traffic dealt with under the agreement, Lt.-Col. Ainley said the discharging of wagons was carried out by the steamship company, the present rate for such service being 1s. 7d. per ton. A different arrangement applied, however, with regard to traffic for the Clan Line, Ellerman-Hall, Harrison Lines and the Blue Star Line; these firms carried out the services of unloading and unsheeting wagons and receiving on the quay, and charged a flat rate of 9d. per ton for all classes of traffic, the shipowner claiming the terminal allowances to cover the services of unloading, etc. Where the traffic was carried at a railway rate which included delivery alongside ship, the cartage draw-back allowed by the railway companies was passed on to the shipper or the sender.

All classes of traffic were dealt with under the haulage system and the arrangements were such that no difficulty was experienced in disposing of wagons containing import traffic in time to obtain the early connections forward from Liverpool, or in placing wagons containing export traffic at the disposal of the steamship companies promptly.

With the exception of a small fleet of road vehicles used by the Warehouse Department, chiefly for the collection of East India wool for storage in the Board's own warehouses, special vehicles for use in refuse collection, and some for the Engineering Department's work, the Board did not participate in road haulage, but every facility was given for merchants and other parties interested in the handling of road transport. In most cases goods were stowed on the quay in such a manner as to enable road vehicles to get close in to the piles for loading inward cargo. For discharging outward cargo vehicles were allowed inside the sheds and the goods were received straight into position on the quay, thus incurring speedy and economical handling. A network of good roads linked Liverpool with her customers.

Extension to Leith Harbour.

The Leith Docks Commissioners have placed a contract with Messrs. K. L. Kalis Sons and Company, Ltd., London, for extension to Leith Harbour. The work includes the construction of a new Western Breakwater and the extension of the existing East Pier, also a considerable amount of dredging and reclamation within the area to be enclosed. The contract will be completed in about four years.

Hull and the East Coast

Meeting of Humber Conservancy Board.

AT a meeting of the Humber Conservancy Board, presided over by Mr. J. H. Fisher, J.P., concern was expressed by Mr. A. Cargill with regard to a large sand bank in the River Humber between St. Andrew's Dock and the Lincolnshire coast, which, he said, had of late been more in evidence. Replying, the Engineer (Major A. E. Butterfield, C.E.,) said that three years ago a navigable channel was marked South of the Hull Middle for traffic to Goole. With regard to the cross section of the navigable channel there was no deterioration except this—that whereas shipping used to proceed past the sand to St. Andrew's Dock and to Goole, it had now to enter a navigable channel at Saltend and by-pass St. Andrew's Dock on the south side. The height of the sand had increased, but the width between the sand and the entrance of St. Andrew's Dock had been maintained. The Board had under consideration an appeal for assistance in the steps taken to prevent further erosion of the south bank of the River Humber between Ferriby Sluice and Winteringham Haven.

The Works Committee reported the receipt of a letter from the Ancholme and Winterton Beck Catchment Board, in which it was stated that it was anticipated that the Lindsey County Council would agree to contribute towards the cost of the works already approved by the Humber Conservancy for preventing further erosion and asking whether the Conservancy Board would be willing to contribute towards the cost in respect of any benefit which might accrue to them.

A communication was also received from the Lindsey County Council, pointing out that they were merely making a contribution under the Land Drainage Act, 1930. The question of the acceptance by the Catchment Board and the County Council of an easement from the Humber Conservancy, and of the acceptance of risk and responsibility with regard to the work, was a matter entirely for the Catchment Board. It was resolved to inform the Catchment Board that the Humber Conservancy Board could not see their way to make any contribution.

The defence works referred to have been undertaken by the Lindsey County Council, and are estimated to cost £37,000 to £40,000. The effect already has been to bring into use again Winteringham Haven, which had suffered from declining coastal trade until the London & North-Eastern Railway closed it down as unprofitable.

The first shipments of stone to be used in the defence works have been landed there, and later the Haven will be the port at which machinery and material will be imported in connection with new cement works to be erected at Winteringham.

Shipping at Hull Docks.

The shipping entering the Hull Docks and paying dues during September consisted of 904 vessels aggregating 605,490 net tons, as compared with 913 vessels and 534,191 net tons in September last year. The totals for the quarter were 2,714 vessels and 1,793,791 tons, as against 2,947 vessels and 1,879,591 tons in the corresponding three months of 1935—a decline of 233 vessels and 85,800 tons. The number of vessels to hand for the first nine months of the year is thus brought up to 7,811 and the net tonnage up to 5,273,609 tons, compared with 8,214 vessels and 5,177,667 tons in the January-September period last year. Imports of timber continue on a heavy scale, and now exceed a million loads, hewn and sawn, and are in round figures 300,000 loads heavier than at the same date last year. Imports of wheat and kindred cereals during the nine months amounted to 956,954 tons, compared with 852,804 tons—an increase of over 100,000 tons. Oilseeds, nuts and kernels in the same period reached 464,586 tons, as against 480,672 tons. Petroleum imports now total 106½ million gallons—a decline of 11½ million gallons, and imports of sheep's wool 1,053,571 centals, as against 1,302,062 centals. Fruit and vegetables were imported on a comparatively small scale in September, but to date total 4,328,670 packages, compared with 4,254,693 packages in the corresponding January-September period last year.

The quantity of coal shipped by the appliances at the Hull Docks in the nine months, January-September, was 1,526,853 tons, as against 1,808,264 tons in the corresponding period last year. The figures include cargo and bunkers, foreign and coastwise.

At Immingham the aggregate shipments were 1,222,349 tons, as against 1,393,306 tons. Exports of coal alone from all the Humber ports during the past three months were 717,826 tons, compared with 810,091 tons in the third quarter last year, bringing the total to date up to 2,105,199 tons, against 2,407,357 tons. There was thus a decline of 302,158 tons, indicative of the difficult times through which the export coal trade from the Humber is passing.

Meeting of Bridlington Harbour Commissioners.

At the recent meeting of the Bridlington (East Yorkshire) Harbour Commissioners the quarterly report showed that £400 had been received from the Development Commissioners, being the first instalment of the promised grant of £1,000 towards the cost of working the dredger. It was intimated that a further £100 would be paid in March, 1937, and the balance of £500 in two instalments later in the same year.

The Chairman (Dr. T. C. Jackson) announced that the question of a new provisional order had been under consideration by the Special Committee. The Commissioners were aware, he said, that the dredging operations had resulted in everyone using the harbour getting benefit. If the improvement was to be maintained and extended they would have to continue dredging, and it might be that the Commissioners would have to ask those who were getting the increased use of the harbour to make some contribution towards the cost of the benefit received. The Commissioners decided to reduce the rates or dues on the value of fish landed and sold from 4d. to 3d. in the £ as from October 1st, in order to assist the fishermen who, during the past 12 months have experienced one of the leanest periods for many years.

Alderman E. Lambert moved the re-election of Dr. T. C. Jackson as chairman, remarking that so long as Dr. Jackson would be good enough to hold office the Commissioners would not think of electing anyone else. Mr. Charlesworth seconded, and the proposition was carried unanimously.

On the motion of Mr. Charlesworth, Mr. F. V. Blyth was appointed a named Commissioner.

Whitby Harbour Dredging.

The dredging of Whitby Harbour is shortly to be taken seriously in hand, a new motor grab hopper dredger having been obtained by the Whitby Urban Council. This has been built by Henry Robb, Ltd., at Leith, and at its launching recently was named "Esk" by Mrs. Simpson, wife of the Chairman of the Whitby Harbour Committee. The dredger has a hopper capacity of 3,000 cubic feet, and is of the most modern type. The propelling machinery and the dredging grab are both operated by Diesel oil engines. The new dredger will be able to operate all the year round.

New Channel in North Caspian.

The first fishing vessels have passed through the new Byelinsky Channel connecting Astrakhan and the delta of the Volga with the Dengiz District and Guryevo across the shallows of the northern part of the Caspian Sea. Work on the channel, which is 18 miles long and 150 ft. wide, and nearly 10 ft. deep, was begun at the end of last April. In order to prevent the sands drifting into the canal, a dam two miles long has been built on its eastern side. The new channel will be of great importance to the fishing industry of the North Caspian. Formerly, for fear of being caught in the ice, fishermen left the sea long before the autumn season was really over. The Byelinsky Channel will considerably lengthen the autumn fishing season. Instead of the 30 hours which used to be required to cover the distance from the Byelinsky banks to Astrakhan, only 10 hours are now needed.

The Institution of Engineers-in-Charge.

In the course of his inaugural address as President of the Institution of Engineers-in-Charge for the coming year, Mr. Asa Binns, M. Inst. C.E., M. I. Mech. E., who was introduced by Mr. E. A. Sandford Fawcett, C.B., M. Inst. C.E., the retiring President, gave an interesting account of the early history of the Thames from the days when the valley was inhabited by wild animals to the present day when ocean liners navigate right to the heart of London.

Mr. Binns, who is Chief Engineer to the Port of London Authority, described the value of the Port to the individual and pointed out that within an economic distributing area of London there is a population of twenty million souls whose wants—amounting to millions of tons of foodstuffs—are largely supplied by ships entering London Port. In the docks there are 45 miles of deep water quays equipped with every form of mechanical and electrical plant and machinery, used in the every-day work of the Port for handling almost every conceivable description of merchandise. It would surprise most Londoners to know that in addition to the Tower Bridge, there are no less than 40 opening bridges within the Port of London!

A fascinating glimpse of some of the many-sided activities of Thames Docks was afforded by a cinematograph film and slides.

Notes from the North

Caernarvon Harbour Trust.

AT a recent meeting of the Caernarvon Harbour Trust consideration was given to a recommendation by the Works Committee to procure a combined utility ship for the use of the port. A lengthy discussion took place, and it was resolved that the Trust should procure this type of vessel, being the most suitable and economical for the use of the port. Messrs. Caseborne and Turner, naval architects, were engaged to give primary advice on the most suitable type of vessel, and also to draw plans and specifications. The vessel, it was stated, should prove of considerable benefit, as the Victoria Dock would be dredged free of mud and vessels of deeper draught can be accommodated. It is understood that about 1,700 tons of mud have already been dredged from Victoria Dock this year.

The Works Committee of the Caernarvon Harbour Trust has recommended the allocation of a sum not exceeding £7,000 for the purchase of a combined utility steamer and dredger.

Mr. Lloyd Hughes (Chairman of the Works Committee) explained that the " Seiont " was 35 years old and in a bad state. A combined utility boat could do the work of the " Seiont " and serve as a dredger. After dredging their own harbour they could let the steamer on hire to such places as Portdinorwic, Bangor and Beaumaris.

Mr. J. G. Wynne Williams (Chairman of the Finance Committee) explained that there was an annual deposit of one thousand tons of mud in the Victoria Dock, and the amount of mud to be removed from the dock was 40,000 tons. The cost of removing 40,000 tons of mud with spades would be about £5,000. The saving with a dredger would be very considerable. The Surveyor had marked the " Seiont " as dangerous, and it would not last more than five or six years.

Visitors to Liverpool Docks.

Sir L. A. P. Warner, general manager of the Mersey Docks and Harbour Board, welcomed 120 members of the Manchester, Liverpool and District Section of the Institute of Transport on the occasion of their visit to the Liverpool and Birkenhead Docks and the Mersey Tunnel, as guests of the Board.

Mr. J. G. Merriweather, superintendent of the Preston Docks, said that although representing an adjoining port, there was happiness and brotherliness between the various port authorities in the area, that there was no question of their visiting one port or another without being received in a very courteous manner. He thought it was very fitting that in the coming year, when they were to be honoured in the presidency of the Institute by Sir Alfred Read, whose interests in shipping were so well known in Liverpool, that the first meeting should take the form of a visit to the docks of the Mersey Docks and Harbour Board.

Sir Lionel Warner thanked the various speakers on behalf of the Board for their tributes. It would always be a great pleasure, he said, to show anybody their facilities, especially people who were interested in transport.

Ferry Manager's Retirement.

Capt. W. E. Langshaw is to retire at the end of the year from the general managership of the Birkenhead Ferries.

Capt. Langshaw is a Manchester man. He served his apprenticeship to the sea with Walmsley's, a Liverpool firm. Later, he forsook sail and joined the Warren Line in trade between Liverpool and Montreal. He was subsequently appointed by the Manchester Ship Canal Co. to superintend the loading and discharging of vessels at one of the principal docks in Liverpool. In 1910 he became assistant-superintendent of the Alexandra Docks and Railway Company at Newport. Out of over 200 applicants he was selected as general manager of the Birkenhead Ferries in 1914.

Dock Stands for Carts.

In the vicinity of the Liverpool Docks there is a large number of street sites which are reserved for use by horse-drawn vehicles. Recently, the Liverpool Corporation gave notice of their intention to apply to the Ministry of Health for authority to repeal the bye-laws by which these stands were created. Negotiations were opened by one of the Liverpool transport associations with the Liverpool Corporation, and an assurance was obtained that it is not the intention of the authorities to interfere with stands (the number and location of them is specified) which are in regular use. The police department recognises that the use made of the stands is essential to the working of traffic in dock areas, and an assurance has been obtained that no difficulties will be put in the way of carts plying for hire from stands.

Tin Slag used to Prevent Coast Erosion.

Some excellent work has been done near the banks of the River Mersey at Crosby, in checking coast erosion. Nearly 17,000 tons of heavy tin slag have been deposited a total length of 776 yards, to divert the course of the River Alt. For nearly 20 years the Alt has skirted the Blundellsands coast, assisting the sea to damage roads and destroy property. The new work, it is confidently predicted, will maintain the Alt in a course running directly out to sea, shortening the length by over a mile. It has already resulted in lowering the bed of the stream, where the diversion has been made, and has allowed more rapid passage of the land drainage water carried by the river. Erosion of the coast line is definitely checked, and the old course of the river has begun to fill up.

Ribble Dock.

Mr. J. G. Merriweather, superintendent of the Preston Dock undertaking, gave an address to a local society on the progress and development of the Ribble Navigation. He expressed the opinion that when the sinking fund had been reduced to a reasonable figure the dock would prove the success which its original supporters visualised, and would be looked upon with pride by future generations.

The total sum invested in the enterprise up to March, 1936, was £1,964,458, the amount redeemed by the operation of the sinking fund, when added to the sum provided from revenue and other sources amounted to £890,781, leaving the debt still outstanding at £1,073,677. The rate-in-aid had, however, been gently falling in recent years, for whereas in 1892 it was 2s. 1d. in the pound, this year the call was down to 8d.

The number of men employed directly by the Corporation on the dock was approximately 800 to 1,000.

Mersey Cattle Wharf.

Some personal changes have taken place at the Mersey Cattle Wharf. Mr. E. V. Walker has been appointed wharfinger in the place of the late Mr. T. H. Platt. Mr. Walker entered the Board's service in September, 1905, and commenced work at the Mersey Cattle Wharf in 1912. He has been partly responsible for some of the work in connection with the reorganisation and reconstruction of the premises adjoining the lairages. Mr. E. J. Heaton takes the place of Mr. Walker as assistant-wharfinger.

Ship Canal Company's Workshops.

Considerable progress is being made in the Manchester Ship Canal Company's development at Old Quay, Runcorn, in constructing a workshop for the repair of the huge lock gates which are used at various points along the waterway. The task, now in progress, involves the making of a slipway and the construction of a large " bay " in the side of the canal in addition to the repair shed. It will be some months before the work is completed.

Ferry Steamers for Sale.

Wallasey Corporation intends to offer for sale the two ferry steamers, " Snowdrop " and " John Joyce," adjudged by economy experts to be redundant. They were built in 1910 at a cost of £19,445 each, and after upwards of a quarter of a century's service they were in any case due for retirement shortly, unless they underwent an expensive reconditioning to meet Board of Trade requirements.

Manchester's Advantage.

Mr. Thomas G. Mellors, who presided at the annual meeting of the Trafford Park Estates, Ltd., said sending goods from London to each of the 45 towns in Great Britain, which had a population of over 100,000, necessitated their being carried a total distance of 8,487 miles, but sending goods from Manchester to each of these towns (including London) necessitated a carriage of only 5,220 miles. Manchester showed a saving of nearly 40 per cent. in distribution distance to the whole of great Britain. The volume of traffic on the canal was improving; the last season had been a record one in the importation of cotton to Manchester.

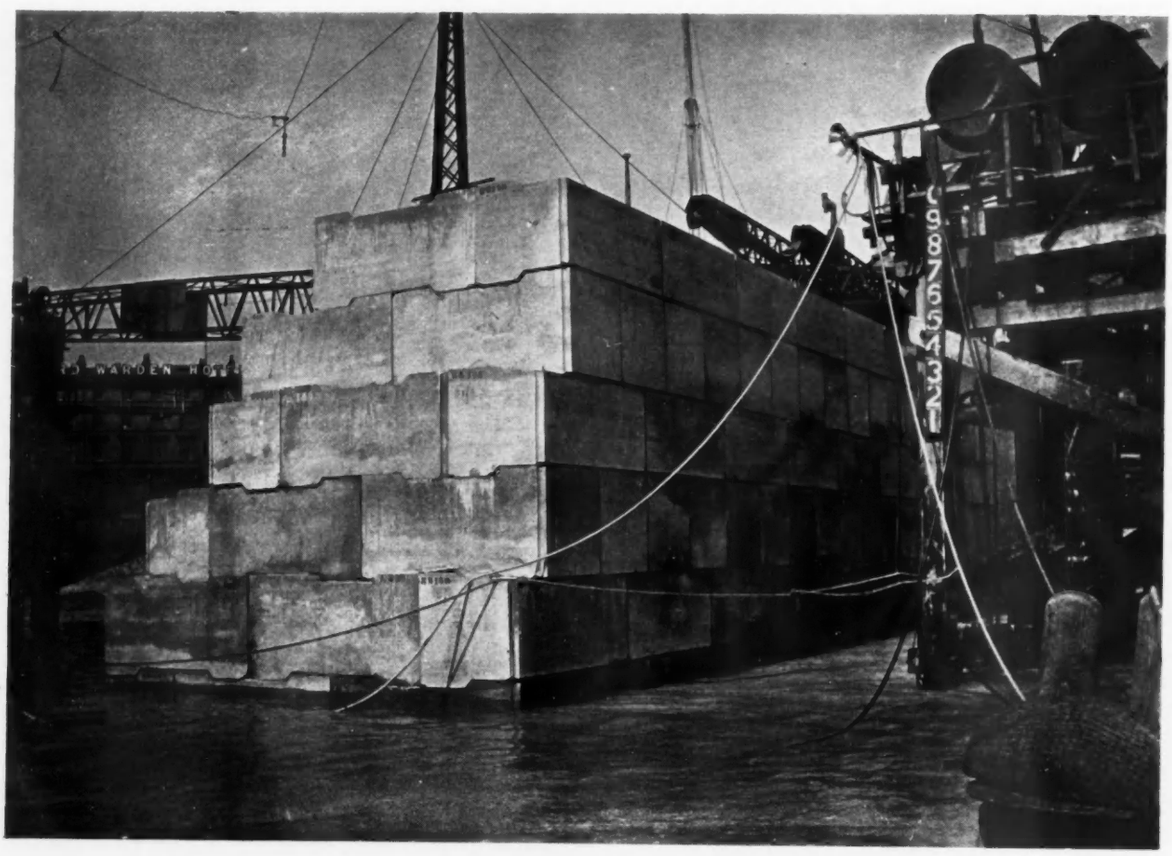
Manchester Ship Canal.

Official returns by the Manchester Ship Canal Company reveal that traffic receipts for September were £95,500, as compared with £97,100 in August, and with £94,852 in September of last year. Raw cotton imports during the last few weeks have been running well ahead of those in the corresponding weeks of last year, and there is also considerable activity in grain, oil and other commodities, which are shipped to Manchester. Receipts for the first nine months of the year are £949,765, or £24,755 more than those for the nine months ended September, 1935.

Tilbury Contracting & Dredging Co. Ltd
ESTABLISHED 1884
LONDON
T.C. & D.C. Ltd
Tilbury House, Westminster, London, S.W.1
Telegrams: Tilburian Sowest London
Telephone: Whitehall 8241 (3 lines).
Codes: Bentleys - A.B.C. etc.

Dover Train Ferry Scheme

Gates Floating in the Dock.



North Wall under Construction.

Dover Train Ferry Scheme

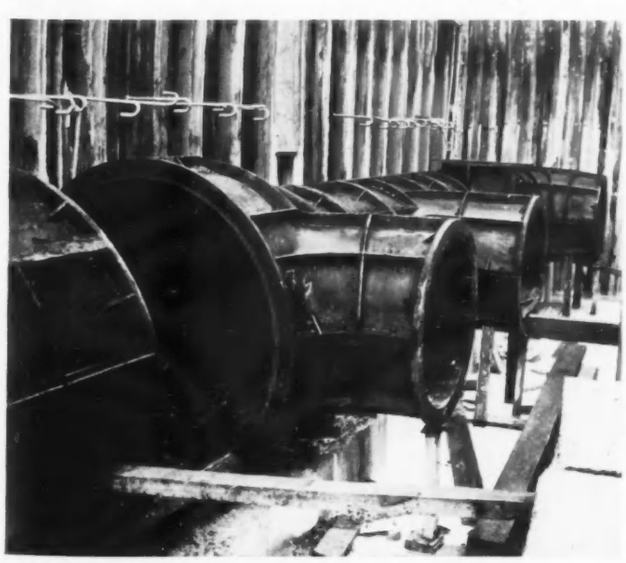
The Link Span in Position.

WHEN the question of the establishment of a train ferry service between an English Channel port and France was considered, every possible location for the terminal on this side was studied. The conditions which existed at the various points which came under review were such as to indicate beyond doubt that Dover would provide the most suitable situation on the English side. All likely sites at Dover were closely examined and the form of construction of the terminal also was considered from every aspect.

Usually at ferry terminals where there is variation in the water level due to tidal action, a bridge of suitable length connects the ship with the shore, this bridge forming an inclined approach as the sea level varies with the state of the tide. At Dover the extreme variation between the highest and lowest water level is 25 ft., and this would have necessitated that the length of such an inclined approach over which sleeping car trains could pass would have been about 500 ft. Further, the weather conditions in Dover Harbour are at times very severe, and on numerous occasions the heavy swell which prevails would have prevented the mooring of the ship to such a bridge.

It was also desirable to provide facilities which would enable the ferry traffic to be dealt with in the shortest possible time when transferring the trains between the ship and the shore, and also for ensuring that punctual and regular services can be dealt with day or night, which services may be subject to considerable expansion in the future.

It was finally decided that the most suitable design would be to build an enclosed dock, the entrance to which could be opened or closed at will, in which to berth the ferry vessels.



Portion of Pump Chamber Culverts during Erection.

Powerful pumps could then regulate the water level inside the dock so as to raise or lower the vessel to the requisite level in the shortest possible time.

The site selected for the dock was as close as possible to the present Marine Station, as this position, from a traffic working point of view, is the most convenient.

Parliamentary powers were duly obtained and the work was let to contract.

It was realised from the first that the operations would require considerable skill, but the difficulties which actually arose, mainly due to faults in the strata of the sea bed, were very much greater than could possibly have been anticipated. There is no part of the coast which has been the subject of more geological investigation than that in the Dover neighbourhood, but nevertheless, on the site of the dock such conditions were met with as no geologist could possibly have foreseen, or which by any previous investigation could have been detected.

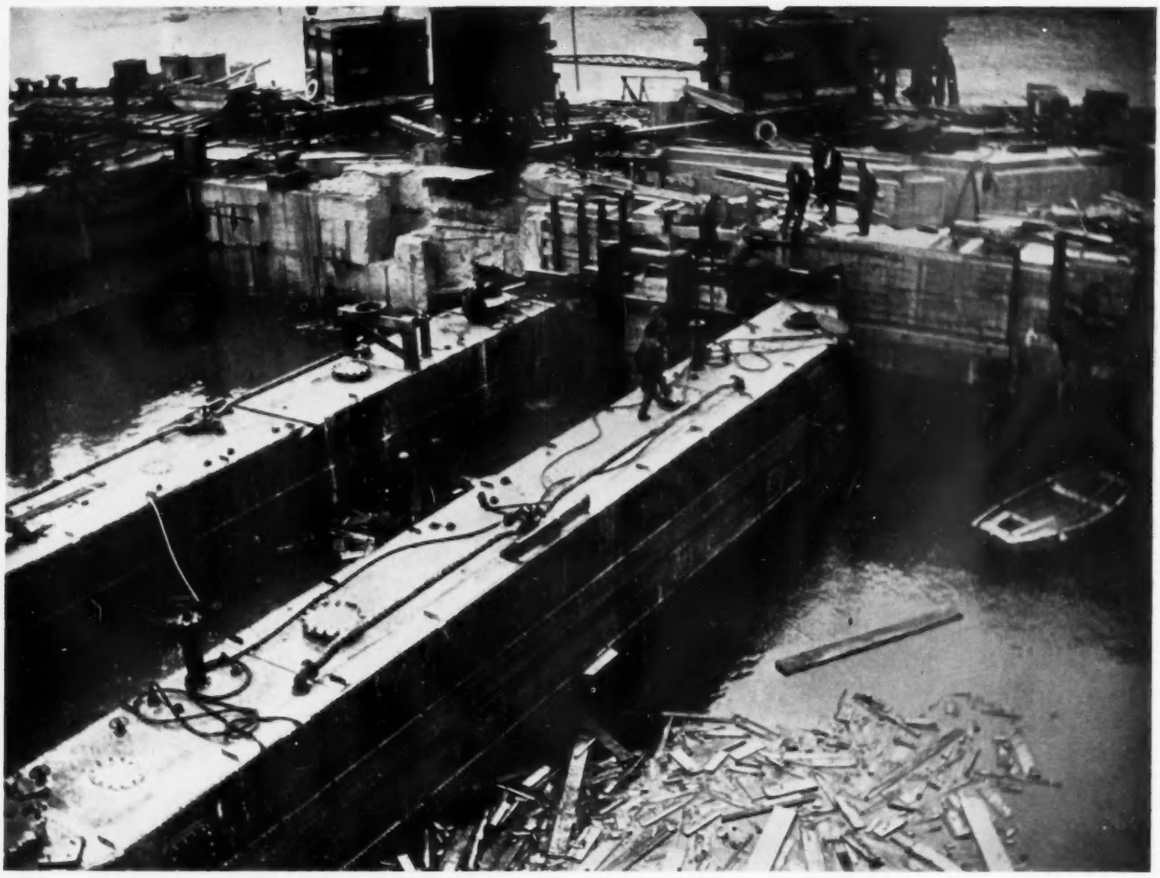
Originally, it was intended to surround the site with a cofferdam or barrier consisting of a double row of steel sheet piles driven into the chalk, stiffened by cross walls and bracings and filled in between with earthwork. A certain length of the steel sheet pile walls was driven, but the heavy winter storms demolished them before much progress was made. It was then decided to enclose the area with concrete walls roughly 25 ft. in thickness, which would be built on mass concrete foundations previously laid under water by divers, and would consist of precast concrete blocks, each weighing about 7 tons and bonded together in such a manner as to be impervious to water pressure.

An opening in these surrounding walls was left to form the entrance to the dock, and this entrance was temporarily closed by a specially designed steel caisson 92 ft. long by 60 ft. wide by 28 ft. thick, and weighing 525 tons.

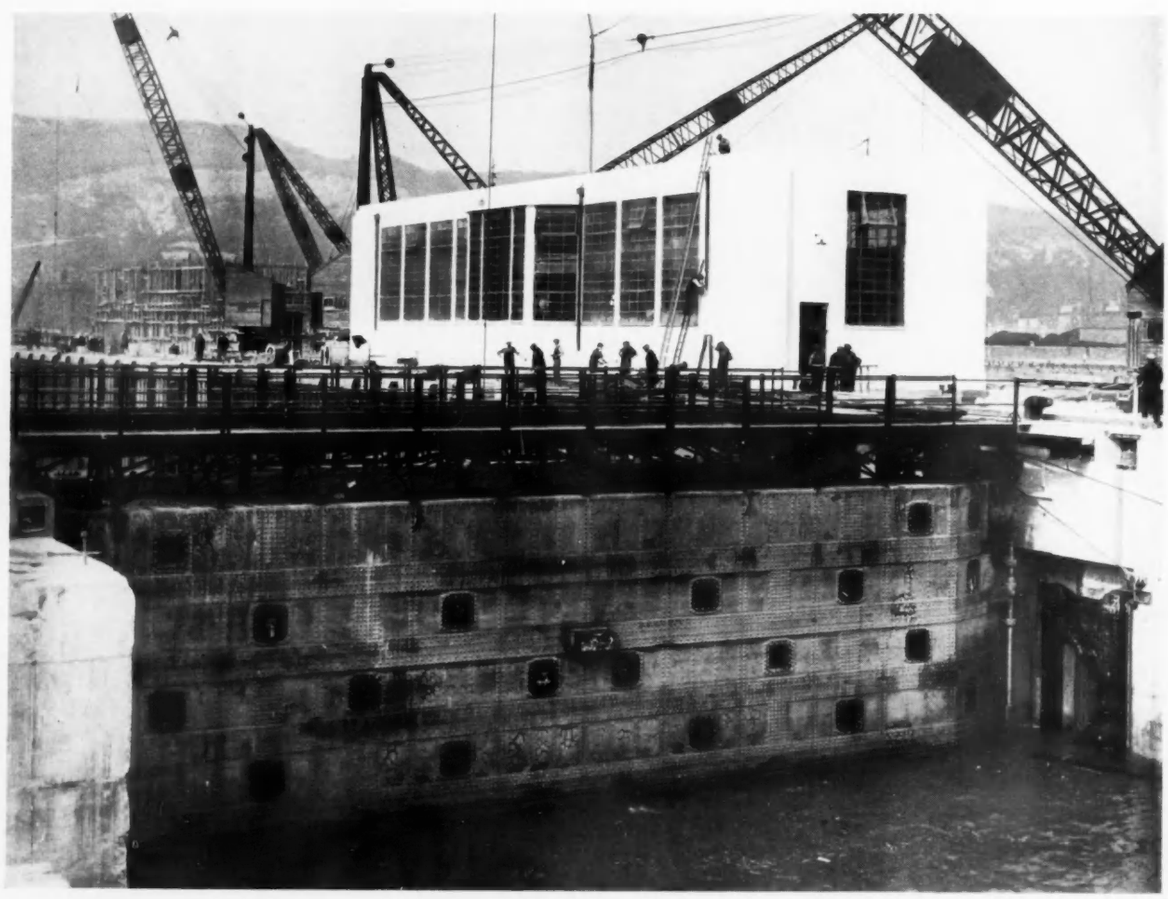
The surrounding walls were designed to form an integral part of the work, and the proposal was to complete these walls and the foundations for the caisson, place the caisson in position and then pump out the area thus enclosed and complete the dock works, including the dock gates and the pump culverts, in the "dry" in the usual manner. During the progress of constructing the foundations for these walls, which were laid by divers in the solid chalk as deep as 50 ft. below high-water level, nothing was discovered which gave rise to any misgiving that the work as outlined could not be done, but on the contrary the chalk was found to be of a hard and consistently solid nature. When, however, the operation of pumping the enclosed area was put into effect it was found that owing to the existence of fissures in the chalk rock forming the sea bed, which were now for the first time disclosed owing to the greater pressure of the sea water outside as compared with that inside the enclosed area, the water came up through the bottom faster than it could be pumped out, and although some weeks were spent in depositing mud on the outer side of the enclosing walls in the hope that it would be sucked into the fissures and thus seal them, this device was found to be of no benefit.

Consideration was, therefore, given to the possibility of freezing a certain thickness of the sea bed, and a scheme for forming a solid barrier of ice and chalk all round the dock area

Dover Train Ferry Scheme



Inner Gate in Final Position. Outer Gate in Temporary Position.



Caisson in Position.

Dover Train Ferry Scheme—continued

Mechanism of Control Room in the Pump House.

about 20 yards thick and 40 yards deep was devised. Leading Continental specialists in this type of work were consulted, but their advice was not of a character to inspire confidence in the result of such treatment.

All available means of dealing with the situation which had thus arisen were explored in the light of modern engineering developments, and ultimately the method decided upon was one of an entirely novel character, as there was no precedent on which to work.

The problem was to construct the dock, which has an integral length of 414 ft., an overall width of 70 ft., and depth of water over the cill at L.W.S.T. of 17 ft., in an area from which it was impossible to remove the water. The entrance had to be closed by two gates of the " box " or flap-door type, each weighing 300 tons, which work independently of each other on horizontal hinges laid below the dock cill.

The site on which the work was to be done was subject from time to time to conditions practically identical with those of the open water, and heavy seas with waves as high as 15 to 17 ft. were liable to arise at any time during a greater portion of the year.

The method of operation adopted for the excavation of the chalk rock in the dock area consisted of enclosing a dredger in the area and placing the temporary caisson in position at the entrance, thus enabling the excavation to the required depths to be carried out in still water, subject, of course, to the normal rise and fall of the tide. This permitted the dredging work to be done at a rate which was greater than could possibly have been done otherwise. The chalk rock was of so tough a character that ordinary dredger buckets would not cut it and they had to be provided with teeth made of the very hardest steel which tore out small quantities of the chalk at a time, causing heavy grinding and vibration of the dredging craft during the operations.

The two most critical parts of the scheme were (1) the construction of the cill on which the dock gates were to be hinged, the foundations for which were 70 ft. below high-water level, and (2) the construction of the pump house, the foundations of the lowest floor of which were also at about the same level as that of the cill foundations.

For the formation of the dock cill, it was decided to construct and sink a specially designed steel pontoon of ⊔ shape, the two flap gates being hinged on either side of the lower horizontal base of the ⊔ pontoon and the gates, when in the vertical position, closing the open space between the two vertical sides of the ⊔. When in the horizontal position the gates lie flat on the dock bottom. The pontoon was built of steel plates and angles rivetted together and very strongly braced. Over the vertical sides of the ⊔ there is a length of 91 ft., a total height of 60 ft., and a thickness of 29 ft.: the whole of the interior of the pontoon was filled with concrete except for certain culverts and ducts which were formed in the concrete for the accommodation of pipes and other gear. The ⊔ pontoon was built on land in the vicinity and fitted with the massive cast steel gate hinges before being launched. It was then lowered into the sea, towed into its place and sunk between very carefully constructed guides to ensure that it would be finally in its exact position. So accurately was this work done that upon completion, although the ⊔ weighed about 440 tons before being filled with concrete, it was within one-tenth of an inch of its correct position and level, and no particular difficulties were encountered in placing the gates in their final positions in the hinges. It is needless to say that to accomplish such a feat, most precise engineering methods and careful surveying, as well as splendid work on the part of the steelworkers, and the divers who laid the foundations, was necessary.

Coming to the construction of the pump house, it should be stated that three sets of vertical spindle centrifugal pumps have been installed, each of capacity of 230 h.p., and capable together of dealing with a maximum of 120,000 gallons of water a minute. In order to secure the greatest possible efficiency it is necessary that the pumps should be situated well below the lowest water level, and this involved constructing the pump chamber 102 ft. long by 30 ft. wide with the lowest floor 50 ft. below high water level. It was also necessary that this chamber, which is in the enclosed area, should be constructed under water and that when the side walls were built it should be capable of being dried out so that the culverts from the sea to the dock could be fixed and jointed in the " dry." These culverts vary from 6 to 10 ft. in diameter.

Bearing in mind the fissured state of the sea bottom, it was essential that the floor of the pump chamber should be capable of resisting the upward pressure of the water of a head of 50 ft., which is equal to 1½ tons per square foot. Twenty-one steel girders, 48 ft. long and 5 ft. deep, spaced 5 ft. apart, and weighing 5 tons each, were therefore laid on prepared foundations on the sea bed.

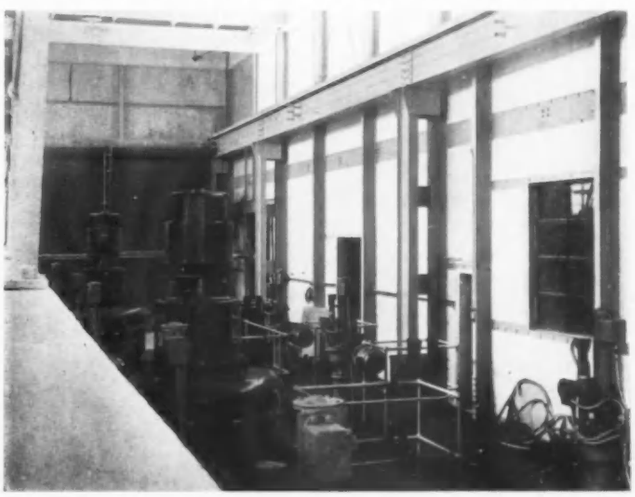
The level of the foundations had to be fixed by means of grillages formed of old rails, and the girders were lowered into place and accurately positioned by the divers. The concrete was then filled in between the girders and thus a watertight concrete floor heavily reinforced with steel girders was formed at the required depth. The inner side of the pump house walls was shuttered by steel piles, the bases of which were stepped into steel channels laid previously at a suitable distance from the ends of the girders on both sides.

The concrete floor of the pump house was laid by means of under-water " skips " or boxes, the bottoms of which can be opened when the " skips " have been lowered the required depth, thus enabling the concrete to be laid between the girders by the divers operating below. The concrete in the side and end walls of the pump house was deposited through a " Tremie Pipe," a device which enables the concrete to pass in a pipe to the required level under water without getting into contact with the surrounding water, thereby preventing the cement from being washed away. At the bottom of the pipe divers guided the concrete into its correct position, and it is essential that once a length of work has been commenced it must proceed to completion, otherwise the concrete would be unsatisfactory.

No records exist of the construction of such a chamber under similar conditions, but, nevertheless, the whole operation was completely successful, and when the water from the chamber was pumped out it was found that there was no percolation whatever, even under a maximum head of 50 ft., when, as previously mentioned, the water pressure on the outside of the concrete is 1½ tons per sq. foot.

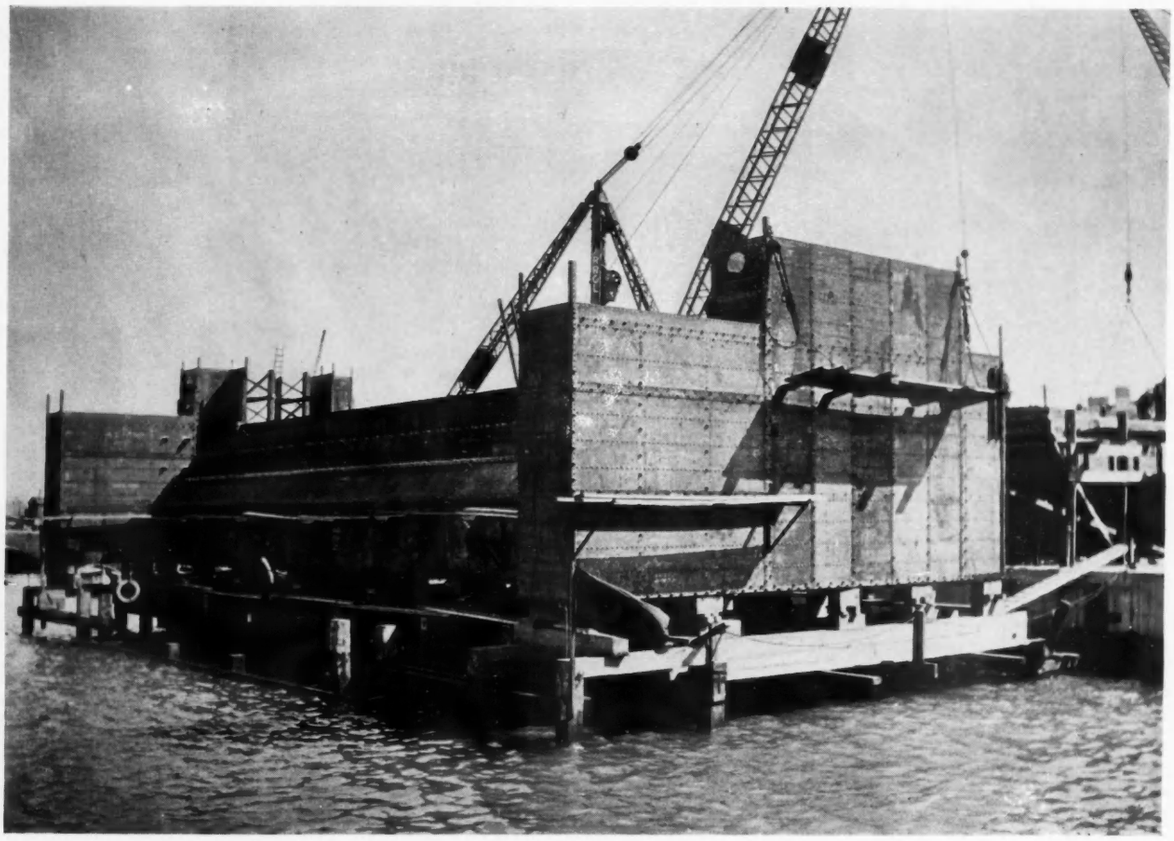
The upper portion of the pump house took the form of a steel-framed building with brick walls and a steel roof, and provides accommodation for the pump motors, the whole of the highly elaborate electrical gear controlling the operation of the main and auxiliary pumps, the valves and the special electrical generators supplying the motors for the dock gate winches.

The next problem was the construction of the main dock walls, which are 28 ft. thick, and it was decided that the best method of accomplishing this would be to drive two rows of steel sheet piling in the still water of the enclosed area, the

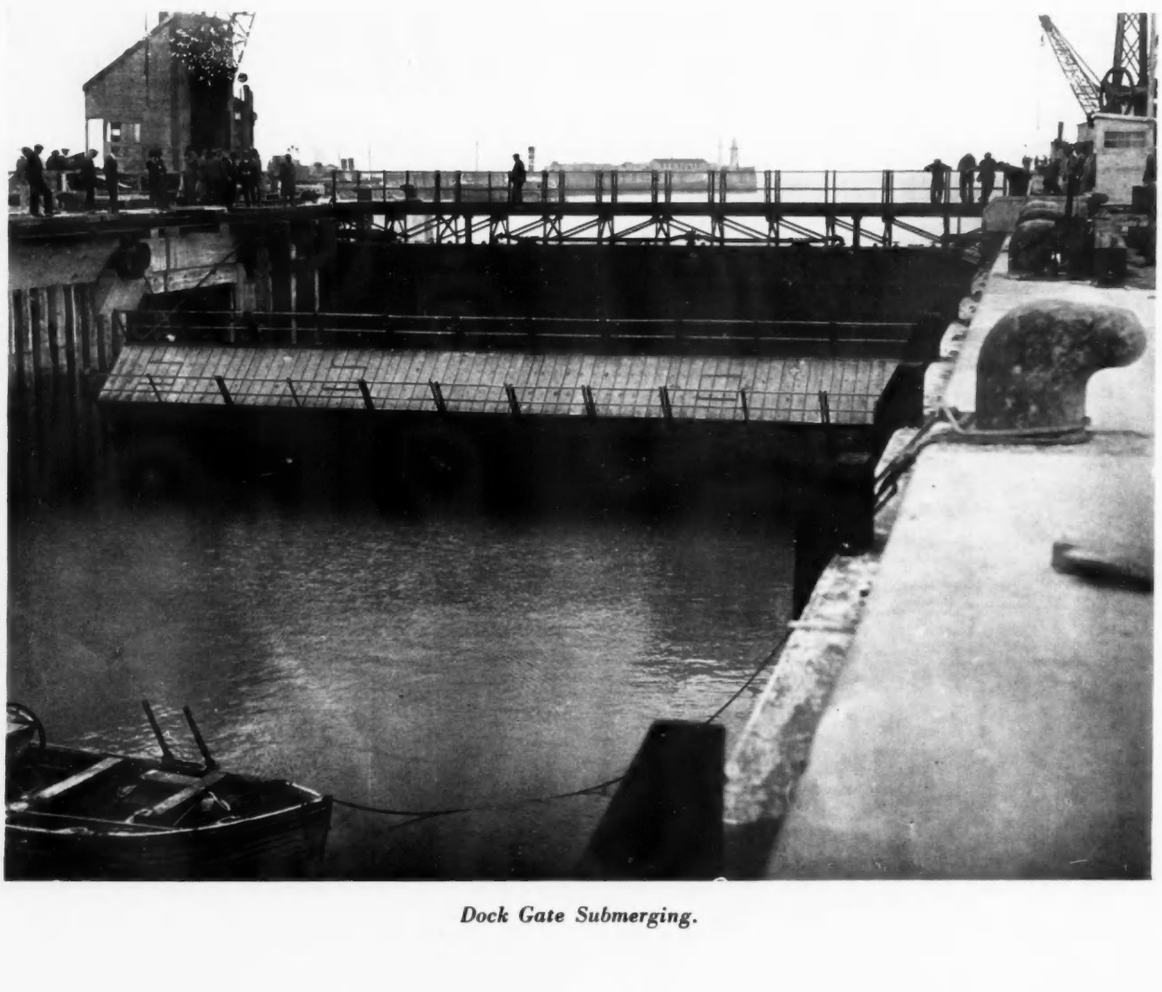


Interior of the Pump House.

Dover Train Ferry Scheme



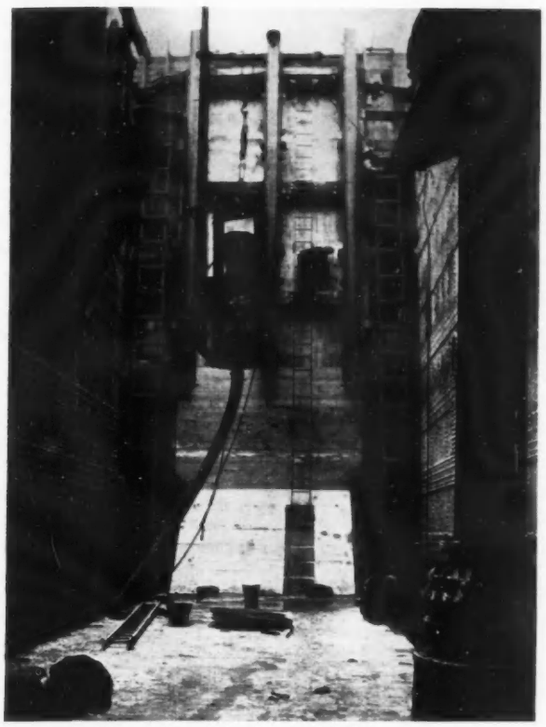
Horizontal Base of the ⊔ Pontoon before the Vertical Sides were fixed.



Dock Gate Submerging.

Dover Train Ferry Scheme—continued

steel piles forming the shuttering for the mass concrete of the dock walls. The walls were then constructed in lengths of about 40 ft. at a time, the concrete being laid by means of "Tremie Pipes" as previously described.



View taken between the Two Gates after the Water has been pumped out.

One of the final stages in the construction of the dock has been the laying of a concrete floor about 5-ft. in thickness over the whole area of the dock with the object of avoiding the percolation of water from the sea bed. The whole of this concrete was deposited under water and levelled off by divers, strips of the floor, about 80 ft. long and 25 ft. wide, being laid at a time.

The above is a very bald and brief outline of the main operations involved in the construction of the dock, but owing to the unusual conditions under which the work was carried out, unlooked-for problems of considerable complexity arose almost daily, necessitating most careful and arduous thought and labour on the part of all concerned. Day and night for three years the work has been carried on without cessation, and for the greater part of that time practically nothing could be seen above water to indicate what was being done, as the bulk of the work was carried out in the darkness of the water of the sea.

In addition to the dock, an approach jetty, 400 ft. long and 30 ft. wide, formed of concrete piers enclosed in steel sheet piling and with a concrete dock has been constructed, alongside which the ferry vessels will lie before entering the dock. From this jetty the vessel will be warped through the open gates, which will be lying flat on the bottom of the dock, into the berth, after which the gates will be closed and the water raised or lowered to the required level by means of the pumps. When the vessel is at the required level, connection will be made to it at the inner end of the dock by means of a bridge 70 ft. long. This bridge will normally be approximately level, but as loading and unloading of the trains on to the vessel takes place, there will naturally be some tilting both longitudinally and sideways of the vessel.

The bridge is a completely articulated structure, being so constructed in order to take up any difference in level caused by this tilting, and it can be raised clear of the vessel when necessary. A massive steel pin at the end of the vessel will enter a recess which has been formed in the bridge, thus securing it during the operation of loading and unloading. Two lines of rail track cross the bridge so that it will be possible for two lines on the vessel to be dealt with at the same time.

The passage of all traffic between the railway lines on the shore and the vessel will be controlled by a complete electrical signalling and interlocking installation, so as to eliminate any possibility of a mishap occurring. Ordinary locomotives will be used for transferring the railway vehicles between the ferry vessel and the land.

A new ferro-concrete Customs House building is being constructed for dealing with the traffic to and from the train ferry vessels, and in this building, which has two storeys, are provided the usual offices connected with a railway station. In addition to this building a Transit Shed, also in ferro-concrete, will be part of the terminal station, containing considerable space for bonded stores and also fitted with modern plant usually installed in a goods shed.

Special means are being provided to facilitate the transport of motor cars by the ferry. Cars will be housed in transit in a large garage on the upper deck into which they will be driven by way of an inclined approach road from the quay level. A covered hall for registration and examination of cars is being provided on the ground floor of the Customs building.

The three ferries which have been named "Twickenham Ferry," "Hampton Ferry" and "Shepperton Ferry," were built on the Tyne and are considerably larger than any other vessels in the cross-channel service, having a length of 359 ft., a beam of 63 ft. 9 ins., and a mean laden draught of 12 ft. 6 ins. They are designed for a speed of 16½ knots. The train deck contains four railway tracks capable of holding in all 12 coaches or 40 wagons. In the regular sleeping car service the two centre tracks will be used for the passenger coaches, and the outer tracks will be used for freight wagons. The after-part of the train deck will also be available for holding large motor vehicles which cannot conveniently travel in the garage on the upper deck.

The vessels are fully equipped for carrying first and second-class passengers in the ordinary way, as well as in the sleeping cars, the accommodation provided including saloons for both sexes, restaurant, smoke room and bar, private cabins and ample lavatories.

When the sleeping car service was inaugurated on October 14th, passengers left Victoria at 10 p.m. and arrived in Paris at the Nord Station at 8.55 the following morning without having to leave their berths en route. If, however, they prefer to do so, they may, of course, visit the restaurant and refreshment bars on the upper deck of the ferry vessel, to which there is convenient access from the train deck.

Our French neighbours were fortunate in having at their disposal at Dunkerque a basin in which it was only necessary to build a fendered berth and connecting bridges for trains and cars, and this basin can be reached from the channel by either of two locks.

One of the Ferry Steamers.

The Wagons-Lits Company have built twelve sleeping cars for the new service, each containing nine compartments which can be arranged to provide a single berth for first-class passengers, or alternatively, two berths for second-class travellers. The supplementary fares for this accommodation are first class and second class.

There will also be a daily service for freight. More than 1,500 goods wagons have been built for the purpose, and it will be possible to send goods direct from England to France,

Dover Train Ferry Scheme—continued

Germany, Hungary, the Balkan States; in fact, to anywhere except Russia and Spain, where the gauge is different. From the time of loading in the wagon until the arrival at the ultimate destination there will be no handling, risk of damage will be negligible, and therefore transport costs reduced.

The principal materials used in the dock works were as follows:—120,000 cubic yards of concrete; 7,000 tons of steelwork; 220,000 cubic yards of dredging.

The main contractors for the works at the commencement of the contract were Messrs. E. Nuttall, Sons & Co., and J. Mowlem & Co. (Joint), Ltd., but since June, 1935, the execution of the same has been completed by Messrs. J. Mowlem & Co., Ltd., on behalf of the joint firm.

The whole of the works have been carried out to the designs and under the supervision of Mr. George Ellson, the Southern Railway Company's Chief Engineer.

North-East Coast Notes

New Industry for Tyneside.

YET another development is promised on Tyneside, that is, the construction of a quay 650 ft. in length at Willington Quay, which is adjacent to Wallsend. There had been all sorts of rumours circulating for a while past concerning some scheme which was to be undertaken in that area, but it was left to the meeting of the Tyne Commission in September to let the truth be known and to divulge the whole plan. The new quay is to afford accommodation for a new industry. The subject was raised by the Port Facilities Committee, which announced that an inquiry had been received for a site at Willington Quay, formerly occupied as a shipyard by Eltringham's, Ltd., on which a proposed new company was to carry on an industry for the making of plywood. A scheme of development comprising the construction of a quay and the dredging of a berth at a cost of £17,500, had been prepared by the Commissioners' Engineer. Negotiations had been entered into with the corporations of Newcastle and Wallsend for the site on lease for 40 years, subject to the scheme being proceeded with. Subject to certain conditions, the Committee approved the proposals, and recommended that the Commission should take over the lease referred to, the Commission to have power to sub-lease to the company to be formed.

Sir Frank Simpson, Deputy-Chairman of the Commission, who presided, said the requirements included the quay 650 ft. long, with 12 ft. of water alongside at low tide. The new company was required to guarantee a minimum of traffic of 12,000 tons per year. The Commission would receive their usual charges on ships and goods, and in addition would be paid interest and redemption covering their expenditure and rental of the land which the Commission would take on lease from Newcastle and Wallsend Corporations. The scheme was contingent on the new company being formed, and the Commission was informed that everything had been arranged satisfactorily. The Commission had been informed that there was no factory of the kind proposed in this country, and, therefore, the proposal would be of material benefit not only to Tyneside but to the nation.

Sir George Lunn said it was good to know that this was a new industry for the river. It was a long time since a completely new industry had been started on the banks of the Tyne. There were other sites available made ready for industrialists, and the Tyne Commission was prepared to co-operate with anybody who came along.

The report of the Port Facilities Committee dealing with the Willington Quay plan was confirmed.

It may be further noted that at a meeting of the City Council in Newcastle on September 16th, it was agreed to lease to the Tyne Improvement Commission Eltringham's old shipyard at Willington Quay, which is to be used as detailed above.

More Details of the Scheme.

Subsequently some details regarding the new plywood company were announced. The nominal capital is £250,000, and the working capital of £140,000 has already been subscribed privately, about two-thirds in London and the remainder locally. An immediate start is being made with preparations for the erection of the factory. For the first year or two, whilst the works are being built and started, profits cannot be earned, and Messrs. Swan, Hunter and Wigham Richardson, Ltd., being anxious to assist in establishing this new industry on the Tyne, are guaranteeing payment of the preference dividend for the first five years. They will, however, have no part in the management of the Company. Mr. J. Denham Christie, Chairman of Directors of Messrs. Swan, Hunter and Wigham Richardson, Ltd., who has taken the chief part in the steps leading up to the formation of the Company, will be first chairman, and other local directors will be Dr. Wilfred Hall, and Mr. C. A. Nelson, London representatives, will be Mr. R. F. Norland and Mr. David Finnie, and Mr. R. H. Embleton is to be secretary. The general manager will be Mr. G. Questier, who has special knowledge of and connections with the industry. He will be responsible for the lay-out, erection, and equipment of the factory and the organisation of the business. The factory is being started with the intention of specialising in the making of Gaboon plywood, which is largely used in shipbuilding.

Tyne Commissioners' Treasurer.

Mr. A. V. Blunt, of New Barnet, Hertfordshire, assistant to the treasurer and comptroller of the Metropolitan Water Board, London, has been appointed treasurer to the Tyne Improvement Commission, Newcastle, in succession to the late Mr. L. J. Goudie. Mr. Blunt has been in the service of the Metropolitan Water Board for 23 years, ten of which have been spent in the accountancy section. The salary of his new appointment is £750 per annum.

Quick Loading on the Tyne.

An instance of quick loading in the Tyne was reported at the end of September. The steamer "Westwood" loaded at three different parts of the river, one above and two below bridges, and in 14 hours, which included waits and moving time, took on board 1,370 tons of cargo coal and bunkers.

New Jarrow Staith.

Sir Frank Simpson intimated at the meeting of the Tyne Commission in September, that Messrs. Bowes and Partners had shipped continuously at the new Jarrow staith since August 19th. During last month more than 30,000 tons had passed over the plant, a figure in consonnance with the guarantee of a million tons per year. It was fitting, he added, to pay a tribute to those who had been responsible for the design and construction of the staith. The Commissioners' Engineer-in-Chief, Mr. R. F. Hindmarsh, must have felt gratified at the numerous compliments paid to him on the opening day. That Board, too, complimented him and his staff on the success of their efforts over two years. There had been close co-operation between Major Kirkup, of Messrs. Bowes and Partners, and Mr. Hindmarsh, in the carrying out of the contract, and they joined Major Kirkup in the expression of appreciation.

The Port of Rotterdam.

The Chamber of Commerce and Industry of Rotterdam has issued the statistics concerning the movement of sea-going ships in the New Waterway, and which are as follows:—

During September, 1936, 1,013 ships of 1,618,475 n.r.t. entered the Port of Rotterdam, as compared with 937 ships of 1,489,129 n.r.t. during September, 1935. The number of ships entering for the small ports in the environs were 199 of 358,695 n.r.t., as compared with 167 ships of 335,356 n.r.t. in September, 1935.

For the first nine months of the year, January-September, 1936, 9,259 ships of 15,129,186 n.r.t. entered the Port of Rotterdam, as compared with 8,169 ships of 13,239,687 n.r.t. in the corresponding period of 1935. The number of ships entering for the small ports in the environs of Rotterdam during the first nine months of 1936 were 1,839 of 3,656,226 n.r.t., as compared with 1,775 ships of 3,558,151 n.r.t. in the corresponding period of 1935.

After deducting the number of ships counted more than once in the different ports, the number of entrances in the month of September, 1936, amounted to 1,138 vessels of 1,799,476 n.r.t., as compared with 1,053 vessels of 1,677,382 n.r.t. in September, 1935. For the first nine months of 1936, the total entrances were 10,481 vessels of 17,149,610 n.r.t., as compared with 9,427 vessels of 15,398,184 n.r.t. in the corresponding period of 1935. These figures are for the whole region of the Port of Rotterdam with its environs, comprising the delta formed by the mouths of the Rivers Rhine and Meuse.

The Port of Naples

New Maritime Passenger Station Opened

The New Maritime Passenger Station at Naples.

THE passenger traffic is the main feature of shipping in the Port of Naples, and in 1935—1,210,139 passengers arrived and departed from that port. Under these circumstances, it is not surprising that the existing maritime passenger station on the Molo Pisacane did not meet the requirements of traffic any longer, and that its quayage became inadequate for the size of vessels trading in the port, and the fact that the station was not provided with unloading and loading facilities for baggage, goods, etc. These are the main reasons which induced the Government to approve the construction of a new maritime passenger terminal on the Molo Luigi Razza. The building was commenced in June, 1934, and completed last September. The new maritime passenger station, which is one of the largest in the Mediterranean, was officially opened on October 1st, 1936, by the Italian Minister for Communications.

The Landing Deck of the New Maritime Passenger Station at Naples.

The Molo Luigi Razza is situated in the centre of the town of Naples (which is of considerable importance for passengers as they land directly in the town), and measures 120 metres in width over the whole length of the quay, which is in three sections, each having a length of 200 metres, 300 metres and 412 metres respectively. The building of the new maritime passenger station occupies an area of 12,220 square metres, and consists of two sections connected by means of covered bridges, which cross the railway tracks running between the two sections of the building over a width of 35 metres. The two sections of the building run for a length of 174 metres along the quays, and measure 27.50 metres in width and 22 metres in height. The building has four floors, and from the first floor (7.50 metres from the quay) the landing gangways are run. The whole construction has been built in concrete, and all the floors have been built to a capacity of 500 kg. per square metre.

In the rez de chaussée there are the offices of the Ispettorato per gli Italiani all'estero, the Italian State Railways, the Harbour Master, the Post Administration, the State Police, the Port Militia and others of smaller importance. On the first floor there are the Custom's Inspection Offices, waiting rooms, restaurants, offices of the steamship companies, the Post, Telegraph and Telephone Services, etc. On the second and third floors there are rooms for offices and accommodation for the personnel employed in the operation of the station.

In connection with the port facilities at Naples it may be interesting to note that on the old Vittorio Emanuele II. quay measuring 169 metres in width with two quays of 352 metres and 390 metres in length respectively, there are under construction two warehouses, each measuring 65 metres in length and 30 metres in width, with a total area of 3,900 square metres, and a storage capacity for 24,000 tons of goods for foreign trade, and a warehouse of an area of about 1,900 square metres and a storage capacity of 12,000 tons for Italian goods. The mechanical unloading facilities on the mole are to be renewed, and several auxiliary buildings are to be erected.

On the Porta di Massa quay a three-storey warehouse has been erected, occupying an area of 3,200 square metres, fitted with three elevators; on the Sacramento quay the mechanical unloading facilities have been increased. Eight new electric cranes are being installed on the quayage of the Vittoria Emanuele III. docks.

Australian Wool at Hull.

What is the largest single consignment of Australian wool to be despatched to the Port of Hull for many years arrived at the London and North-Eastern Railway Company's King George Dock last month. The consignment consisted of 14,040 bales, approximately 2,246 tons in weight. It was despatched from Sydney, New South Wales, on 9th September, loaded in the s.s. " Port Townsville " of the Port Line. The vessel berthed at the King George Dock, Hull, on Tuesday, the 13th October.

Aden Port Trust

The following are returns of shipping using the Port of Aden for the month of August, 1936:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	159	627,098
,, ,, under 200 tons ...	4	648
Government Vessels	8	21,891
Dhows	28	1,755
PERIM.		
Merchant Vessels over 200 tons ...	6	20,072

The total value of imports, excluding Government Stores, was Rs. 46,22,000/-, as compared with Rs. 40,93,000/- for August, 1935, and of exports Rs. 28,44,000/-, as compared with Rs. 28,74,000/-.

The total value of both imports and exports together was Rs. 74,66,000/-, as compared with Rs. 69,67,000/- for the corresponding month last year.

Imports during the month were above those for August, 1935, in the case of grain, pulse and flour, gums and resins, raw hides, grey, white and printed or dyed piece-goods, manufactured tobacco and private treasure; and below, in the case of coffee, hardware, seeds, raw skins, sugar, twist and yarn, and unmanufactured tobacco.

Exports were above those for August, 1935, in the case of grain, pulse and flour, raw hides, grey, white and printed or dyed piece-goods, twist and yarn, manufactured tobacco; and below, in the case of coffee, gums and resins, hardware, seeds, raw skins, sugar, unmanufactured tobacco and private treasure.

TRADE OF THE PORT.

Article.	Unit	Imports		Exports	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	8,047	1,48,062	60	120
Coffee	Cwts.	5,200	1,30,796	7,879	2,63,413
Grain, Pulse and Flour	,,	45,779	2,68,673	32,920	1,78,254
Gums and Resins	,,	512	6,833	1,381	28,041
Hardware	—	0	28,721	0	27,850
Hides, raw	No.	7,104	7,773	8,040	14,403
Oil, Fuel	Tons	46,411	10,96,811	3,072	66,590
,, Kerosene	Gls.	28,232	18,145	128	86
,, Petrol	,,	38,346	34,366	0	0
Salt	Tons	0	0	9,000	45,000
Seeds	Cwts.	1,589	17,309	249	3,499
Skins, raw	No.	236,590	1,51,137	315,094	3,11,136
Sugar	Cwts.	13,169	64,907	13,569	65,523
Textiles—					
Piece Goods, Grey	Yds.	2,857,808	3 63,282	2,279,320	2,87,013
,, ,, White	,,	1,056,665	1,61,855	562,045	90,147
,, ,, Printed or Dyed	,,	1,482,915	2,76,852	1,604,618	3,44,247
Twist and Yarn	Lbs.	96,440	43,685	62,338	26,792
Tobacco, Unmanufactured	,,	472,220	80,905	333,704	57,248
,, Manufactured	,,	148,848	1,72,707	202,916	1,77,739
Other Articles	No. of Pkges.	64,989	12,36,141	17,135	5,86,185
Treasure, Private	—	0	3,12,830	0	2,71,060
Total ...	—	—	46,21,790	—	28,44,346

The number of merchant vessels over 200 tons that used the port in August, 1936, was 159, as compared with 131 in the corresponding month last year, and the total tonnage was 627,000, as compared with 530,000.

Excluding coal, salt, fuel oil and Military and Naval Stores and transhipment cargo, the total tonnage of imports in the month was 7,600 and of exports 5,100, as compared with 8,100 and 5,100 respectively for the corresponding month last year.

The Port of Karachi

In the month of June, 1936, 65 vessels with a net registered tonnage of 167,079 entered the Port of Karachi, and 65 vessels cleared of 167,318 n.r.t. The number of vessels which entered and cleared during June, 1935, were: Entered, 70 vessels of 185,828 n.r.t., and cleared, 67 vessels of 175,337 n.r.t.

For the three months April-June, 1936, the number of vessels entering the Port of Karachi amounted to 221 of 567,777 n.r.t., and clearances amounted to 222 vessels of 567,837 n.r.t. During the corresponding period of 1935, 223 vessels entered of 583,444 n.r.t. and 218 vessels cleared of 571,469 n.r.t. The above figures do not include country craft.

The amount of cargo handled in June, 1936, was: Imports 44,935 tons and exports 70,221 tons, a total of 115,156 tons of cargo. In June, 1935, 47,373 tons of imports and 71,301 tons of exports were handled, a total of 118,674 tons. For the three months April-June, 1936, imports amounted to 177,694 tons and exports 251,085 tons, a total of 428,779 tons. For the corresponding period of 1935, imports were 175,994 tons and exports 232,881 tons, a total of 408,875 tons.

In the month of July, 1936, 74 vessels with a net registered tonnage of 201,477 entered the Port of Karachi, and 70 vessels cleared of 191,872 n.r.t. The number of vessels which entered and cleared during July, 1935, were: Entered, 71 vessels of 196,729 n.r.t., and cleared, 74 vessels of 204,617 n.r.t.

For the four months April-July, 1936, the number of vessels entering the Port of Karachi amounted to 295 of 769,254 n.r.t., and clearances amounted to 292 vessels of 759,709 n.r.t. During the corresponding period of 1935, 294 vessels entered of 780,173 n.r.t., and 292 vessels cleared of 776,086 n.r.t. The above figures do not include country craft.

The amount of cargo handled in July, 1936, was: Imports 72,891 tons and exports 78,410 tons, a total of 151,301 tons of cargo. In July, 1935, 60,020 tons of imports and 73,719 tons of exports were handled, a total of 133,739 tons. For the four months April-July, 1936, imports amounted to 250,585 tons, and exports 329,495 tons, a total of 580,080 tons. During the corresponding period of 1935, imports were 236,014 tons and exports 206,600 tons, a total of 542,614 tons.

The Port of Copenhagen.

The number of ships which entered the Port of Copenhagen during September, 1936, was: From inland ports, 1,196 steam and motor-ships of 187,138 n.r.t. and 23 sailing vessels of 3,771 n.r.t. arrived. Shipping arriving from foreign ports amounted to 834 steam and motor-ships of 436,546 n.r.t. and 16 sailing vessels of 9,011 n.r.t. The total of steam and motor-ships and sailing vessels arriving from both inland and foreign ports for September, 1936, amounted to 2,069 vessels of 636,466 n.r.t., as compared with 2,088 vessels of 621,181 n.r.t. in September, 1935.

The Port of Ghent.

During the month of September, 1936, 153 ships of 168,368 n.r.t. entered the Port of Ghent, as compared with 139 ships of 148,555 n.r.t. in the corresponding month of 1935. This is an increase of 14 vessels and 19,813 n.r.t.

For the first nine months of 1936, 1,525 vessels of 1,587,184 n.r.t. entered the port, as compared with 1,301 vessels of 1,394,581 n.r.t. in the corresponding period of 1935. This is an increase of 224 vessels and 192,603 n.r.t. this year.

News from all Quarters

U.S.A.

FOR many years there has been talk of instituting a free harbour at San Francisco. The idea first became popular during the world war, when the closing of the Suez Canal brought a decided increase to the volume of traffic using the port, and was favoured at that time by the Chamber of Commerce. Upon resumption of normal conditions, however, the plan was dropped. Then, following the Federal law of June, 1934, " to provide for the establishment, operation and maintenance of foreign trade zones in ports of entry of the United States, to expedite and encourage foreign commerce, and for other purposes," it was revived. Just about a year ago the Harbour Commission of the Commonwealth Club of California made the question of a free harbour in San Francisco the subject of an exhaustive enquiry.

At this time the Leader of the Foreign Trade Department of the Chamber of Commerce, Mr. W. L. Montgomery, stated that that body was not opposed on principle to a free harbour, but considered that it could not be at present justified. The overseas traffic of San Francisco consisted mainly of rice, coffee and roots, for which the existing provisions of the harbour had long proved adequate. He was answered by Mr. Tilden Mattox, then Regional Leader of the U.S. Bureau of Foreign and Domestic Commerce, who enumerated the following points in favour of a free harbour:—1. The elimination of the cumbrous customs ritual, which would help to attract more shipping. 2. The possibility of instituting consignment warehouses. 3. The elimination of routine work and inconvenience involved by the use of customs warehouses. 4. The economy to be effected by doing away with securities and deposits for traffic in bond. 5. The better business outlook that would result for American banks, insurance companies, shipping agents and brokers.

This argument had no effect on the majority of the Harbour Commission of the Commonwealth Club, and they voted that a free harbour would be superfluous.

In July this year the San Franciscan State Board of Harbour Commissioners, presumably on the advice of the Ministry of Commerce, suddenly began to advertise in the press and among exporters and importers, its long-sustained support for the creation of a free harbour zone at Pier 45. Experts are of the opinion that this step has arisen from a desire to keep Pier 45 permanently occupied. It has long been a source of complaint by the ships that use it, for it lies exposed to strong seasonal currents and inconveniently near to the anchorage ground of two large shipping lines. Such a move by the authorities would appear to indicate that the Ministry of Commerce is resolved to force a free harbour on San Francisco, in face of all opposition from those interested locally in the matter.

Norway

The Oslo Port Authorities report a further increase in the volume of traffic for the fiscal year 1935/36. 28,320 ships, aggregating 5.12 registered tons, arrived during the year—the former figure being 334 in excess of the total for the preceding year. The volume of cargo handled increased by 153,000 to 1.767 million tons. Notwithstanding this, the takings of the port show a deficit of 100,000 Kroner for the year. Over one million Kroner were spent on harbour extensions. The harbour now takes up 586,000 square metres, and has 11,933 metres of quays and 19,000 metres of railway track. At a conservative estimate, the property owned by the Authorities is worth some 70 million Kroner. They have also managed to reduce their debts by 4.5 to 13.7 millions. During the current fiscal year they expect to spend altogether some five millions, nearly a million Kroner more than last year.

Sweden

The table that follows shows the progress made so far this year in the three largest Swedish ports, for which the increased demand on the Continent for heavy metal ores is largely responsible. The advance is particularly conspicuous for the Port of Stockholm:—

SWEDISH OVERSEAS TRAFFIC

	ARRIVALS		DEPARTURES	
JANUARY TO JULY, 1936	Ships	Net Tonnage	Ships	Net Tonnage
Stockholm	1,811	1,970,408	1,769	1,870 839
Gothenburg	2,633	2,642,910	3,006	2,758,511
Malmo	4,058	1,988,118	4,047	2,080,103
JANUARY TO JULY, 1935				
Stockholm	1,659	1,727,191	1,698	1 713,116
Gothenburg	2,584	2,439,357	2,857	2,467.167
Malmo	4,000	1,926,029	3 951	1,985,081

Figures are also available for the traffic of Gothenburg this September, and these give some idea of the present distribution of flags composing the Swedish traffic. There were 481 arrivals during the month (as against 455 in September, 1935), and the cargoes discharged totalled 278,741 (as against 241,078) tons. Of these vessels, 310 were Swedish. The others comprised 59 (as against 38) ships from Norway, 15 from Denmark, 10 from Great Britain, and 23 (as against 17) from Germany. There were decidedly more departures from Gothenburg than arrivals, the figure being 521 ships, as against 445 in September last year.

On October 20th, Mr. Dieden, harbourmaster of Gothenburg, applied to the Corporation for a grant of 2.25 million kroner, for the expansion of the Lindholmshamnen section of the port. The plan is to extend the quay of this section to 285 metres, 260 of which will possess a water-depth of nine metres or more. The quay will then accommodate two medium-sized ocean-going ships. A new 90-metre quay is also suggested, with a depth of eight metres, to adjoin the Goetaverken docks.

Australia

During the fiscal year ending June 30th, 1936, the traffic using the sea-ports of Western Australia increased considerably in volume. Albany was visited by 106 ships with an aggregate tonnage of 580,547 tons, Bunbury by 97 with an aggregate of 414,889, Geraldton by 113 with an aggregate of 385,279 tons, Onslow by 96 with an aggregate of 279,446 tons, and Broome by 118 with an aggregate of 207,190 tons. The Port of Brisbane also flourished over the same period, as shown by the following traffic figures: 713 ships arrived from overseas, totalling 3.24 million tons displacement, 493 from other Australian states, totalling 1.05 million tons, and 249 native ships totalling 82,395 tons. Departures show almost exactly the same figures for ships and tonnage in each case.

South Africa

At a meeting of the Table Bay Harbour (Capetown) Advisory Board in mail week, it was announced by the representative of the South African Railways and Harbours Administration that the new deep-water berth which is being built for the big mail-ships of the Union-Castle Line, would not be ready until " at least a couple of months, and possibly more " after the date promised.

It appears that the armaments race in Europe is responsible for this state of affairs. Mr. Pirow's oft-repeated promise that the berth will be ready by February next year cannot be fulfilled.

Continental firms who contracted to supply the necessary steel-work are so busy working on armament orders that they cannot guarantee any definite date for delivery. At the earliest the steel-work will arrive in Capetown in January.

Other work in connection with the harbour development at Capetown is proceeding apace. Work has started on the new quay where the harbour's motor launches and smaller craft will be moored. The harbour's pontoon, carrying a pile driver with a hammer thrust of seven tons, is busy driving foundation piles 30 feet long and 14 inches thick into the dock-bed.

At the Prince Alfred basin workmen are constructing anchorages along one quay wall for the floating dry-dock, which is to be moved from the opposite side of the basin. When the floating dock has been moved into its new position, work will be started on a low-level quay. All this construction work is destined to provide further accommodation for fishing craft

Changes at Southampton Docks.

Following the departure from Southampton in October of Mr. E. J. Missenden, M.B.E., who for the past three years has been Docks and Marine Manager for the Southern Railway Company, came the announcement that another prominent Dockland figure would be leaving. Mr. F. E. Wentworth-Sheilds, O.B.E., who has been Docks Engineer to the Southern Railway since 1909, retired at the end of October, and was succeeded by Mr. M. G. J. McHaffie, Resident Engineer at the new docks at Southampton.

Mr. Wentworth-Sheilds designed Southampton's new docks, which have been built at a cost of £10,000,000 on the Western Shore, and personally supervised their construction. Mr. McHaffie worked in collaboration with Mr. Wentworth-Sheilds in the development of the scheme.

Mr. Missenden has been succeeded in the post of Docks and Marine Manager by Mr. R. P. Biddle, who has been Assistant Manager.

The Port of London Authority

London Shipping.

During the week ended 25th September, 1,132 vessels, representing 1,101,422 net register tons, used the Port of London. Of these, 583 vessels (875,756 net register tons) were to and from Empire and foreign ports and 549 vessels (225,666 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 2nd October, 1,079 vessels, representing 1,042,926 net register tons, used the Port of London. Of these, 514 vessels (781,719 net register tons) were to and from Empire and foreign ports, and 565 vessels (261,207 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 9th October, 1,072 vessels, representing 1,115,241 net register tons, used the Port of London. Of these, 559 vessels (895,427 net register tons) were to and from Empire and foreign ports, and 513 vessels (219,814 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended October 16th, 1,593 vessels, representing 1,188,904 net register tons, used the Port of London. Of these, 595 vessels (917,468 net register tons) were to and from Empire and foreign ports, and 998 vessels (271,436 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended October 23rd, 1,271 vessels, representing 1,077,769 net register tons, used the Port of London. Of these, 485 vessels (830,505 net register tons) were to and from Empire and foreign ports, and 786 vessels (247,264 net register tons) were engaged in coastwise traffic.

Tilbury Passenger Landing Stage.

102 vessels totalling 775,032 gross register tons used the Tilbury Passenger Landing Stage during the month of August.

* * * *

77 vessels, totalling 654,704 gross register tons, used the Tilbury Passenger Landing Stage during the month of September.

Development and Improvement Scheme.

The Port of London Authority at their meeting on October 22nd, had under consideration further progressive steps in connection with the carrying out of the £12,000,000 development and improvement scheme for the Port of London.

Decisions included:—

(a) the provision of thirty 3-ton electric quay cranes, most of which will be installed at the Royal Albert and Royal Victoria Docks;

(b) the electrification of the quays at certain berths in the West India Import Dock and the Eastern Branch Dock, Tilbury Docks.

New Dartford—Purfleet Thames Tunnel.

The Port of London Authority have approved a slightly amended plan for the pilot tunnel to be driven as a preliminary to the construction of the new tunnel beneath the Thames between Dartford and Purfleet.

Eastern Dry Dock, Royal Albert Dock.

The work of renewing the keel blocks at the Eastern Dry Dock, Royal Albert Dock, has just been completed, and the new depth on the blocks is now 20 ft. 3 ins. below T.H.W., or 22 ft. 9 ins. below impounded water level.

Hitherto at this dry dock the level at the sill and at the bow end varied, but as the result of the work now completed the blocks are level throughout the length of the dock.

Port of London Authority co-opts Mr. H. Eric Miller.

The Port of London Authority announce that Mr. H. Eric Miller has been co-opted by the elected Members of the Authority to fill a vacancy on the Board.

Mr. Miller is Chairman of Harrisons and Crosfield, Ltd., the well-known East India Merchants. He is Chairman of numerous Plantation Companies, and has been an active member of the Council of the Rubber Growers' Association since 1910. Mr. Miller serves on the International Rubber Regulation Committee, the Advisory Council on Plant and Animal Products at the Imperial Institute, and the Court of Governors of the London School of Economics and Political Science.

Mr. Miller fills a vacancy created by the retirement of the late Sir Charles Campbell McLeod, Bart., who resigned from the Board of the Port Authority some months prior to his death on October 2nd.

Lloyd's Register Shipbuilding Returns for the Quarter ended 30th September, 1936

The statistics issued by Lloyd's Register of Shipping regarding merchant vessels under construction at the end of September last show that in Great Britain and Ireland there is an increase of 79,839 tons in the work in hand as compared with the figures for the previous quarter. The present total of tonnage under construction—928,571 tons—exceeds by 398,017 tons (or upwards of 75 per cent.) the tonnage which was being built at the end of September, 1935, and is the highest quarterly total recorded since September, 1930. It considerably exceeds the aggregate tonnage now under construction in the four leading countries abroad.

About 47,000 tons—5.1 per cent. of the tonnage now being built in this country—are intended for registration abroad or for sale.

The tonnage now under construction Abroad*—1,182,866 tons—is about 80,600 tons more than the work which was in hand at the end of June last.

The leading countries abroad are:—Germany, 424,264 tons; Japan, 175,801 tons; Holland, 140,975 tons; Sweden, 111,860 tons; United States of America, 90,960 tons; and Denmark, 82,015 tons.

Of the tonnage being built abroad, 401,996 tons (or 34.0 per cent.) are intended for registration elsewhere than in the Country of Build.

The total tonnage under construction in the World* amounts to 2,111,437 tons, of which 44.0 per cent. is being built in Great Britain and Ireland, and 56.0 per cent. abroad. The quarterly total for the world shows an increase of 160,432 tons over the figures at the end of June last, and is the highest recorded since December, 1930.

In Great Britain and Ireland, construction was commenced upon 293,176 tons during the last three months, an increase of 10,854 tons, as compared with the corresponding total for the June quarter. During the quarter ended September last, 212,087 tons were launched in Great Britain and Ireland, an increase of 44,129 tons, as compared with the previous quarter. Similar figures for abroad are 393,876 tons commenced, and 303,846 tons launched, showing, as compared with the previous quarter, an increase of 3,424 tons in the tonnage commenced, and of 4,992 tons in the tonnage launched.

Steam and motor oil tankers under construction in the world amount to 82 vessels of 655,236 tons, of which 26 vessels of 202,030 tons are being built in Great Britain and Ireland, 16 vessels of 123,270 tons in Germany, 9 vessels of 77,140 tons in the United States of America, 7 of 62,000 tons in Sweden, 7 of 48,320 tons in Holland, 5 of 46,850 tons in Denmark, 6 of 45,400 tons in Japan, 3 of 20,220 tons in Spain, and 1 of 15,456 tons in France.

Of the 928,571 tons under construction in Great Britain and Ireland at the end of September, 466,663 tons consisted of motorships, while at the same date the motorship tonnage being constructed abroad (781,796 tons) was 385,168 tons in excess of that of the steamers.

The vessels being built in the world at the end of September include 5 steamers and 40 motorships of between 8,000 and 10,000 tons each; 5 steamers and 25 motorships of between 10,000 and 20,000 tons; 5 steamers and 3 motorships of between 20,000 and 30,000 tons; and 2 steamers each exceeding 20,000 tons.

The table respecting marine engines shows that the horse-power of steam engines now being built or being fitted on board amounts to about 862,000 h.p.; this figure includes 76 sets of turbine engines of about 530,000 shaft horse-power. The horse-power of the steam reciprocating engines (about 332,000 h.p.) represents 15.4 per cent. of the total horse-power of marine engines now being built in the world. The figures for oil engines aggregate approximately 1,294,000 h.p., and comprise 60.0 per cent. of the world's total horse-power of marine engines under construction.

Tonnage to Lloyd's Register Class.—Of the merchant shipbuilding in hand throughout the world at the end of September, 1,368,042 tons, or nearly 65 per cent., are being built under the inspection of Lloyd's Register. Of this total, 836,265 tons, representing more than 90 per cent. of the tonnage being built there, are under construction in Great Britain and Ireland; while, of the tonnage being built abroad, 531,777 tons, or 45.0 per cent., are being constructed under the inspection of Lloyd's Register.

* Excluding Russia, for which no figures are available.

Port of Southampton Topics

Docks Statistics for September.

STATISTICS relating to Southampton Docks traffic for September present some curious features, for although there was a very big increase in the number of vessels handled, as compared with the corresponding month in 1935, the volume of tonnage, both gross and net, decreased. Cargo returns were also down, but there was a substantial increase in passengers.

Vessels inward numbered 326, as against 307, and outward 334, as compared with 293—increases of 19 and 41 respectively.

Gross tonnage inward amounted to 1,742,904 tons, which was 189,236 tons less than the September figure in the previous year, when the return was 1,932,240 tons. Outward gross tonnage, on the other hand, showed an increase of 32,941 tons, the figure being 1,854,373 tons, compared with 1,821,432 tons.

The situation in regard to net tonnage was very similar, for there was a decrease of 103,950 tons inward, but an increase of 4,161 tons outward. The actual returns were: Inward 923,785 tons, compared with 1,027,735 tons; and outward 983,478 tons, compared with 979,317 tons.

The cargo returns were a little disappointing, although the drop in imports does not cause any alarm in view of the fact that Southampton deals so much with seasonal cargoes, which, according to circumstances, can be either late or early in any one year.

Imports declined by 11,695 tons, the figure standing at 50,994 tons, compared with 62,689 tons in September, 1935. Exports moved in the opposite direction, an increase of 2,020 tons being recorded, the total mounting from 35,538 tons to 37,558 tons.

In view of the longer North Atlantic season this year, it was only to be expected that the movement of passengers would be heavier in September this year than was the case in 1935. This was certainly so, the aggregate advance for the month being slightly over 10,000 travellers. The number arriving was 36,609, as against 33,724, and those leaving numbered 40,942, as compared with 33,748. The respective increases were, therefore, 2,885 arrivals and 7,194 departures.

Increase in Cargo Handled for First Nine Months.

The volume of cargo handled in Southampton Docks during the first nine months of the year shows a highly gratifying increase, as compared with the corresponding period of 1935. The aggregate increase amounted to 64,360 tons, or 8.62 per cent., the total amount of freight handled being 810,826 tons.

Exports have shown an increase every month from the beginning of the year, the total amounting to 307,459 tons, as compared with 276,263 tons. This gives an advance of 31,196 tons for the period under review, or 11.29 per cent.

Imports have mainly shown a steady tendency to rise, there being only three adverse sets of figures. It is of little value, however, to compare imports month by month for the reason that seasonal cargoes vary a great deal. Sometimes they are early, sometimes late.

Imports for the nine months were 503,367 tons, as against 470,203 tons, an increase of 33,164 tons, or 7.05 per cent.

These figures are very satisfactory when it is considered that Southampton has for years been endeavouring to build up a more remunerative cargo connection, and only last year reached the 1,000,000 tons mark. This year that total should be well exceeded.

Southampton is beginning to feel the effect of the trouble in Spain. Shipments of Spanish fruit, usually carried to the port direct by chartered vessels, would normally be beginning to arrive, but none, of course, will be coming. In a normal season 50,000 barrels of Almeria grapes are shipped through Southampton, between 5,000 and 10,000 barrels arriving at regular intervals throughout the season, which lasts from October to Christmas.

Similarly, Spanish citrus fruit and onion cargoes are also likely to be affected. In view of war risks to vessels entering Spanish waters, charter costs are higher, and, as freight charges remain the same, no specially chartered ships are being employed for fruit shipments this season. What fruit is exported from Spain is likely to find its way to other United Kingdom ports which are regularly used by vessels trading with Spain.

Cunard White Star Line.

Although the lay-up periods have not been determined for the Cunard White Star express vessels, it is expected that very little of the annual overhaul work will be carried out before Christmas.

When the " Berengaria " re-enters service in mid-November after her six weeks' rest, the "Aquitania " will take a fortnight " off," but that will not represent the full extent of her overhaul period. It will, in fact, permit little more than running repairs to be carried out.

The " Queen Mary," it is expected, will be withdrawn for her overhaul about mid-December, after which the "Aquitania" will receive more detailed attention.

It seems doubtful whether the " Berengaria " will have very much more done to her, for she is becoming more and more the Company's reserve express ship. However, she will most certainly be kept in shipshape condition, for her career is not expected to end yet awhile.

U.K. Timber Delegation to British Columbia

B.C. Timber Commissioner Reviews Novel Trade Mission

Mr. Douglas Roe, British Columbia Timber Commissioner, who recently accompanied the U.K. Timber Delegation to the Pacific coast, has now returned to London.

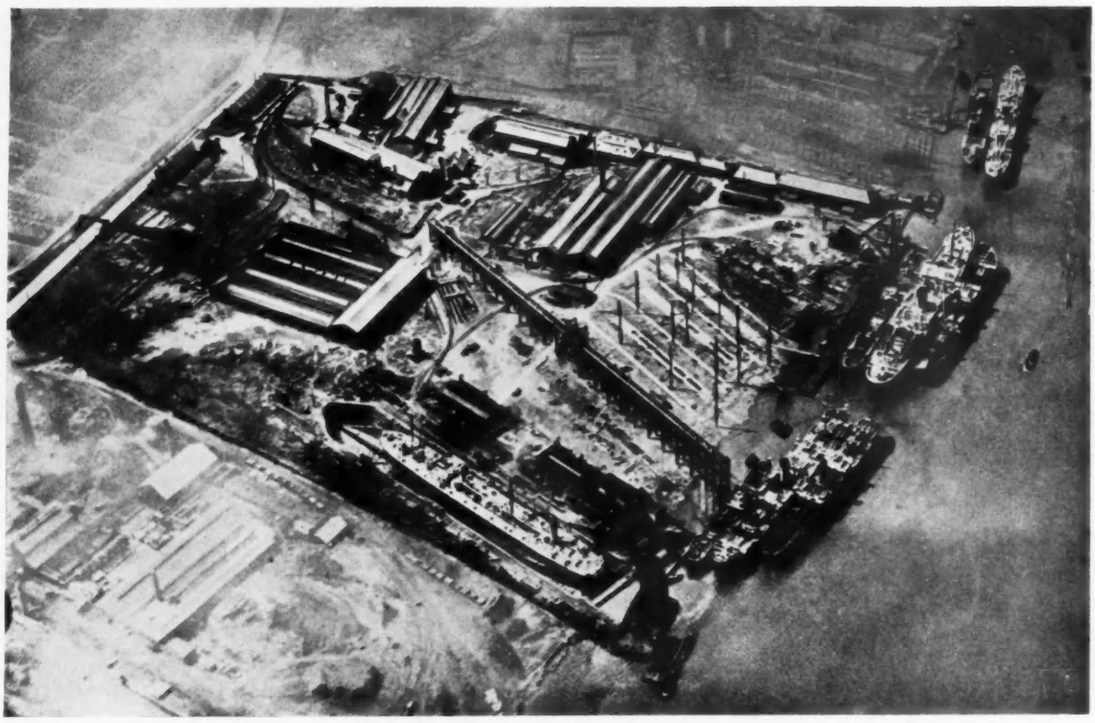
In the course of an interview, he said: " I have had a most interesting trip. I accompanied the timber delegation led by Mr. E. B. Monkhouse, President of the Timber Trades' Federation, with whom among others were Mr. E. H. B. Boulton, Technical Director of the Timber Development Association, and Mr. A. M. McVey, the able and energetic Secretary of both organisations. The delegation registered a distinct success. It is the first time on record that such a mission has gone from this country to British Columbia to investigate our basic industry at first hand, and I sincerely hope it will be the forerunner of many others. In my view, visits of this kind are potent agencies in the promotion of closer inter-imperial relations. They make for better business, and a better mutual understanding of the various problems which are inseparable from business. I am not exaggerating when I say that the delegation made a profound impression on our industrialists, and they showed their appreciation in the most practical way by giving Mr. Boulton support to such good effect that British Columbia is to-day the largest subscriber to the work of the Timber Development Association.

" Speaking for myself, although it is only a little over two years ago since I was last in British Columbia, nevertheless, during that brief space of time the general picture of conditions in the Province has much changed. I found a marked improvement everywhere: less unemployment, brisker business in almost every department of industry, and a new and unmistakable note of confidence. Lumbering, as our prime industry, is the leader in the march to better times. The mills are thoroughly up to date and are doing much more satisfactory business than they ever did before, both in volume and price. Sales are reported as being 30 per cent. better this year than last; stocks are well balanced, and there are very few ' specials ' for which a market cannot now be found.

" On the other hand, in spite of the fact that buying is so much stronger, stockists in this country are experiencing a difficulty in keeping stocks balanced. This rather goes to show that users in the U.K. are buying a little bit faster than the importers, or, in other words, that demand is somewhat ahead of supply.

" The remarkable and gratifying increase in the use of British Columbia timbers in the United Kingdom has, of course, been reflected in increased production by our mills. Some credit for this, apart from the merits of our woods, must be referred to the fact that our manufacturers are sparing no effort to improve both the quality of their product and their methods of production. Everywhere I found the most up-to-date equipment in the mills, installed for the most part with the main object of satisfying the exacting requirements of the U.K. market. Similarly, I am sure the timber delegation met from our industrialists with nothing but the utmost readiness to comply with the wishes of the Timber Trades Federation. Grade marking and an agreed contract form have been the outward and visible signs of the practical results of the delegation's mission. Before grade marking can be put into effect, however, many minor details must be smothed out, but they are details that will be attended to, and within the next few months I think I can promise that the trade can look forward to seeing grade-marked lumber coming from British Columbia into the U.K. market."

Palmers Hebburn Company, Limited



The Shipyard Premises of Palmers Hebburn Co., Ltd.

IT will be remembered that this Company was acquired by Vickers-Armstrongs Ltd. in June of last year, and was formerly one of the more modern subsidiaries of Palmers Shipbuilding and Iron Co., Ltd. When that Company ceased shipbuilding and all their shipyard premises became subject to the rationalisation scheme of the industry, the Hebburn premises included a large modern dry dock, which was reasonably employed and fulfilled a useful service in Tyne facilities for docking, and shipyard machinery and shops greatly in excess of repair requirements only. The workshops and buildings occupy a floor space of approx. 400,000 sq. ft.

The problem of the management has been a peculiar one in that alternative means had to be found of employing, in a revenue-producing manner, as much as possible of the 42 acres site by businesses other than those for which it was laid out.

To some extent and in the short period of just under twelve months, this has been accomplished by the installation of a galvanising plant and by the working up of a nucleus of construction steel-work into what is at present a well-occupied plant.

It was realised, initially, that alterations and additions would be required to put the ship-repairing facilities into first-class order and to match the size of the dock. These alterations have now been completed, and consisted chiefly of the addition of the following items:—

(i) A dockside electric travelling crane, lifting 20 tons, has been installed at the centre line of the dock, to augment the two existing 10-ton cranes, and to enable heavy machinery parts, rudders and stern frames of large size to be handled.

(ii) Electrification of the dock pumps to secure economy and reduce the time of pumping the dry dock.

(iii) New fitting shop machinery to replace and augment older machines, and to assist in Diesel repairs.

(iv) Oil fuel storage arrangements.

(v) The building of a new west jetty by extending the original jetty to a length of 660 ft. and installing two 10-ton electric cranes, which travel along the jetty and have an outreach of 120 ft., and can, in fact, reach the rail of the third tier of smaller-size vessels alongside or two tiers of large vessels. These new cranes augment the 80-ton sheerlegs, and the new jetty enables repairs, refits and conversion jobs to be carried out alongside. It is also well equipped with compressed air mains, temporary lighting cables, electric welding positions, fresh and salt water mains.

For the alternative businesses referred to above, the undernoted improvements and additions have been effected:—

(vi) Re-arrangement, where desirable, of existing machine tools, and acquisition of additional machines and plant to accelerate the output of structural steel-work.

(vii) Installation of hot galvanising plant to deal with all known requirements of the shipbuilding, engineering and allied steel trades, up to work of the largest dimensions and weight, with ample stacking grounds.

In the aerial photographs taken recently, the 12,074-ton Anglo American tanker " Saranac " is in the dock, and the new jetty is occupied by the conversion of the whale oil carrier " Strombus " into a whale oil factory. Outside her lies the new Blue Star liner " Australia Star," which has on her outboard side " African Prince." At the east or dockhead jetty " Kaolack," " Tacoma Star " and " Waziristan " are in hand for repairs, whilst the 150-ton Titan crane lying at the dock gate has been engaged for installing the new jib of the 20-ton dockside crane. The photograph indicates the size of the premises and the 1,200-ft. frontage, which is available for six or seven large ships repairing afloat simultaneously, in addition to the large dock.

The amount of machinery available enables repair and replacement work to be carried out very quickly. The various shops engaged in ship repair work include fitters, plumbers, blacksmiths, joiners and paint shops apart from platers' sheds, all fully equipped with latest machines, hand tools and appliances. Motor generator sets capable of handling simultaneously a great number of electric welding sets, have recently been installed in the power station.

The facilities for ship repairing are therefore excellent, and numbers of oil tankers and cargo vessels are regular visitors for their periodic overhauls. The dock is the largest dry dock between Rosyth and London, being 700 ft. in length, 90 ft. width of entrance, and has 29 ft. of water over sill H.W.O.S.T.

The repairing department has in the past engaged in a variety of interesting jobs, apart from routine docking, survey and damage repairs, which are its daily lot. The unusual operation of renewing the whole of the centre 300 ft. of oil tanks in the tankers, " Cadillac " and " Saranac," was carried out by the building and launching of the new centre portions whilst the vessels continued trading. The vessels were subsequently cut into three pieces and the new middle portions fitted—the operations only entailing laying the vessels off trading for nine weeks. (It so happens that " Saranac "—in hand for one of her periodic refits—is shown in dock in the accompanying photograph).

Palmers Hebburn Company Limited—continued

Maier form bows, and other structural work, conversion of the whale oil factory " Hektoria " and similar work frequently occupies the works.

At the present time " Strombus "—a whale oil carrier—is alongside for conversion into a whale oil factory—a task which, apart from installing whale oil machinery, entails the building of a stern slipway and a flensing deck to house the whale aboard for cutting up.

A year or so ago " Juvenal," a tanker, was in hand for the renewal of 140,000 bottom rivets.

Large commercial ships which have been docked include " Monarch of Bermuda," after building at the Naval Yard, Walker. Many war vessels have been docked, two of the largest being the British battleship " Hercules," of 20,000 tons displacement, and the Brazilian battleship " Minaes Geraes," of 19,281 tons displacement, built at Elswick. H.M.S. "Lion" (26,350 tons displacement) at the end of her career was accommodated in the Hebburn dock, after cutting off a portion of the stern overhang, and was finally cut through amidships prior to being towed to Blyth for final dismantling.

In steel constructional work there are on hand at present a number of steel-framed buildings for factory extensions, cinemas, hotels and the like, eight large oil fuel storage tanks for the Thames (eighty of which have been constructed at Hebburn in recent years, and some up to 10,000 tons capacity fabricated, shipped and erected in Africa), small foot-bridges, steel shuttering for concrete work, roof trusses, and a variety of constructional work, such as crane jibs, still tanks, mine head gear, etc., etc. This variety will indicate generally the type of work carried out, and the designing staff deal with every type of steel-framed structure from aeroplane hangars to small work.

Some 15,000 tons of transmission line towers for the various electrification schemes have been made in these works.

The boiler shop is at present engaged on heavy girder work, and the sheet-iron shops are employed in all manner of light sheet work, including ship's ventilator cowls and trunking, lockers, furniture, storage bins, built-up welded piping and ducts.

The galvanising plant, which started production in April last, is capable of handling over 200 tons of steel per week for use in Admiralty shipbuilding, constructional work, and for a variety of miscellaneous purposes where the hot dipping process is considered essential and its lasting qualities well tried. The pickling and galvanising baths cover a range up to the largest sizes, and have been busily engaged since the plant commenced to operate.

The iron foundry was reconditioned last year, and is in active production for the Elswick Works of Vickers-Armstrongs Limited, by whom it is managed separately.

Breeze and Clinker Aggregates

Summary of Building Research Bulletin No. 5. The Properties of Breeze and Clinker Aggregates and Methods for Testing their Soundness.—H.M. Stationery Office. 6d. net.

The Department of Scientific and Industrial Research has just issued a new and revised edition of a bulletin published some years ago on the properties of breeze and clinker aggregates and methods for testing their soundness (Building Research Bulletin No. 5. H.M. Stationery Office, 6d. net). The materials dealt with are used in a number of ways in building, but the present publication deals mainly with their use as aggregates for poured concrete, precast blocks or slabs and pressed blocks. The term " clinker " is taken as covering well-burnt furnace residues, which have been fused into lumps, while the term " breeze " is taken to cover any type of furnace residue varying from disintegrated clinker to fine poorly sintered ashes containing a large proportion of combustible matter. Examples of failures of concretes made from breeze and clinker, it is stated, are not uncommon. In the case of external walls or poured concrete, covered usually with a rendering, general cracking may occur. These cracks develop and become visible in the set concrete in a period which may vary from one to many months after pouring. In the case of blocks, slabs or pressed bricks, similar cracking may occur during the maturing period, but in some cases visible cracks may only become apparent at a later date.

The constituents likely to cause trouble in breeze and clinker have been found to be certain coals present in an unburnt or very slightly burnt condition. These coals are of certain definite types and cause failure owing to the swelling movements they undergo in the concrete. It is shown that the effect of any particular coal on a concrete can be predicted from its physical properties. The dangerous coals, for example, have the power of removing the colour from a solution in water of the dyestuff methylene blue to a greater extent than the safe coals. Again, the coals which are not dangerous take up more moisture when exposed to moist air than the troublesome coals.

It has been general in the past, the bulletin states, to attribute the failure of breeze or clinker concretes to the presence of certain sulphur compounds. It was supposed that oxidation of these compounds occurred and was accompanied by a volume change which cracked the concrete. While it is true that failures can be so produced, it is clear that, in practice, a failure is rarely due to such a cause, and that the presence of unburnt coals likely to lead to trouble is the cause of the failure. It may be noted, the bulletin continues, that while exposure to weather will in no way reduce the unsoundness of a breeze or clinker concrete if due to the presence of unburnt coal, it will appreciably reduce any unsoundness due to sulphur compounds. In the case of pressed blocks of breeze or clinker made with lime or cement, a process of autoclaving or other steam treatment tends completely to eliminate any possible dangers due to sulphur compounds. It is without effect in reducing unsoundness due to dangerous coals.

Dealing with the influence of water content on breeze and clinker concrete, it is stated that the setting of such a concrete may be retarded if a large proportion of fine material is present and a large proportion of mixing water is required. Satisfactory setting and hardening ultimately occur if the aggregate is sound.

The bulletin concludes with a detailed description of simple methods for testing the soundness of breeze and clinker aggregates, the use of which should minimise the risk of failures. Since the tests require practically no laboratory apparatus, they should prove of utility under field conditions.

The first of these—the " pat " test—is based on the expansion occurring during the first few days of setting of a concrete containing dangerous coals. A mixture of fine white plaster of Paris and a normal Portland cement is used. This mixed with a sample of the breeze to be tested sets rapidly, and any expansion taking place causes visible cracks. This test properly carried out may be relied upon, it is stated, to detect the great majority of unsuitable aggregates. The other test suggested depends on the removal of the colour of methylene blue dye. A sample of the breeze is placed in a glass tube containing 25 cc. of a solution of the dye and is shaken at intervals of half-an-hour for six hours, while a similar sample is placed in a vessel containing 20 cc. of the dye solution diluted to 1 litre with distilled water. When left over night the colour of the solution shaken with the breeze should be deeper than that of the diluted solution. If it is not and is equal to or lighter than that of the second solution the breeze is dangerous and unfit for use. This test detects only certain and not all dangerous breezes.

Opening of the Ruegen Rail and Road Bridge.

The rail and road bridge between the mainland and the Island of Ruegen has been given free for traffic. The construction, which was started in 1933, has cost 25.9 million RM., and provided work for 800 to 1,200 persons for three years.

Bombay Port Trust.

The Trustees reviewed the position of the Pilotage Account and Vessels Replacement Fund. All surplus revenue from pilotage is credited to the latter Fund, and in view of the steady maintenance of revenue and the fact that the amount at credit of the Fund is adequate to meet the cost of replacing the entire flotilla, it was decided, subject to the necessary sanction of Government, to reduce pilotage fees from 1st October, 1936, by the grant of a rebate of 10 per cent. The relief thereby afforded to shipping will be about Rs. 50,000 a year. An increase in the cadre of running pilots from 15 to 16 was also sanctioned.

Subject to Government sanction, amendments of the Docks Scale of Rates were approved reducing the rate of wharfage on unpressed cotton waste and the rent on empty drums or casks stored in the duty paid and bonded warehouses, except the bottling warehouse.

Reserve Grain Supplies for National Emergency

By C. BENTHAM, Chairman and Managing Director of Henry Simon, Ltd.

THIS article is intended to be an objective examination of the problem of a reserve of wheat and flour to meet the needs of the population of the British Isles in the case of a national emergency. It does not pretend to lay down definite theories or proposals, but is an attempt to obtain a clear perspective view of the whole problem.

Past History.

To understand the position thoroughly, it should be realised that investigations have been proceeding for many years, not only by Government Departments but also in all kinds of public and private discussions, newspaper and magazine articles, etc. No practical results have accrued, and nothing definite has been done for the particular purpose of building up a reserve supply for national emergencies.

In 1905 a report was issued by a Royal Commission on the supply of food and raw material in time of war (reference C.D. 2643), and the following methods of holding a reserve supply were considered.

1. Scheme for storage of Government-owned wheat in Government granaries.
2. Scheme for inducing merchants and millers to carry a permanent stock of grain or flour in addition to the stocks which they hold in the ordinary course of trade.
3. Scheme for inducing owners of wheat to store it in the United Kingdom rather than in the country of production.
4. Scheme for inducing farmers in the United Kingdom to retain a percentage of the wheat they grow for a longer period.
5. Schemes put forward by individuals but having particular characteristics

Space does not permit of a more extended reference to these various schemes.

In 1925 a Royal Commission issued a report on food prices (reference Cmd. 2390).

The Commission also considered a scheme for the establishment of Government granaries by means of a national elevator system, the object being to secure and maintain a regular and sufficiently large supply of wheat to the United Kingdom. The scheme was suggested both as a contribution to national security and on the ground that by eliminating speculators in Chicago it would reduce the price of wheat to the British consumer.

The proposal was that a Board of Grain Commissioners should be established which would construct a system of elevators at seaports in the United Kingdom, linked up with elevator systems in Canada and elsewhere, and a series of smaller country elevators for home-grown wheat at suitable inland centres. The scheme also involved the creation of a system of Imperial grain warrants which would be recognised as first-class legal security.

The economic objections to the scheme appeared to be:—

(a) The erection at Government expense of a number of elevators in this country although the then existing storage capacity greatly exceeded the ordinary requirements of the trade.

(b) The tendency of the trade is only to import wheat to meet definite requirements so as to avoid storage charges in the United Kingdom, and unless the Government were to purchase wheat on its own behalf for the purpose of filling its granaries, it is difficult to see how it could be arranged that they should be permanently filled.

(c) Farmers, if they could find a better market elsewhere, would sent it there irrespective of any other arrangements.

(d) The entry of the State into the wheat business as a purchaser for the purpose of maintaining a reserve would involve the risk of considerable loss, as the State grain reserve would not only be expensive to hold owing to cost of storage and depreciation, but its value would always be at the mercy of market movements.

(e) The actual employment of the reserve would involve the retirement of private traders from the trade, and would amount to an indication of scarcity which would probably have the effect of increasing the price in producing countries.

The Commission did not support the proposal for nationally-owned granaries, and consequently no action was taken.

The " English Review " published an article by the writer in 1913, setting out a fairly complete scheme of national grain stores for this country.

In recent years a large number of articles have been published, both in the daily press and monthly magazines; also papers have been read and discussed, and it is safe to say that very few subjects have had so much publicity.

In 1932 the Wheat Act was passed to secure a standard price for home-grown wheat, and the operation of this Act has had the effect of substantially increasing supplies of home-grown wheat.

In spite of the investigations which have been carried out and the mass of material which has been collected on this subject, no definite decisions have been made or results achieved with the exception of the very welcome increase in the quantity of grain grown in this country. A subject of this kind is, however, continually changing, and the conditions to-day vary in many respects from those which obtained in pre-war days; consequently, it might be very useful to examine the facts as they exist to-day without necessarily advocating what particular line of action should be pursued.

Present Day General Requirements.

The holding of a reserve supply of grain in this country is naturally an intriguing subject to the people of these Islands, because we are dependent upon other countries for something like four-fifths of our wheat supplies, and as a national emergency is primarily concerned with interference with our shipping, the maintenance of supplies is of importance to every individual in the British Isles.

There has been a tendency to consider storage of grain on the assumption that grain could be put away and left until it is required, but to people interested in the grain trade it appears to be of great importance that not only should there be a reserve for emergencies but that any scheme for providing this reserve should fit in with the normal requirements of peace time.

No one can forecast what will be the political developments of the world during the next few years, and it is possible, though unlikely, that in ten years' time the state of the world will be such that no danger of interference with our food supplies will exist. But no one believes that this is the position to-day.

War itself is problematical, and the effects of war are also problematical, but we must continue to live in times of peace and under peace conditions. It is certain, however, that in case of war attempts would be made to cut off our supplies, but we must of necessity lay our plans and create our organisations, so far as food is concerned, in such a way that they are applicable to peace conditions. Food in all forms is perishable; consequently, it must be circulated in one way or another. Grain is probably the best form in which a foodstuff can be transported and stored over long periods of time, and this is one of its natural gifts.

During the last ten years there have been considerable changes in the orientation of the system of grain stores. Up to a few years ago it was customary for port authorities to build grain stores, both for receiving grain in transit and for warehousing the grain for a period of time. Millers held comparatively small stocks at their mills and relied to some degree on the public granaries. This condition has already changed to a large extent, and the change is continuing. The building and ownership of grain stores during the last ten years has been in large measure transferred from port authorities to millers and grain dealers.

In Great Britain and the Irish Free State the storage capacity has been increased during the last six years by about 350,000 tons. Much of this capacity has been built in connection with port mills, but nearly every small town mill has increased its storage accommodation during this period. The latter has been due to some extent to the operation of the Home-grown Wheat Act.

The policy of development by private enterprise has proved to be in accordance with the interests of the trade.

Wheat or Flour?

Considerable discussion has taken place regarding the advisability of storing wheat or flour, and there is naturally much to be said on both sides.

There can be no question that the storage of wheat is the simpler problem, because dry wheat can be stored for a year or more without difficulty. It is customary to store wheat in bulk, and the types of buildings used for the purpose are well known.

On the other hand, flour in the form in which it is milled in this country is not usually kept for more than eight or ten weeks. It would be possible to store flour for ten or twelve months if it were sufficiently dry and could be stored under ideal conditions. If the flour were specially prepared for storage there would be some disturbance in market conditions

Reserve Grain Supplies for National Emergency—continued

in returning the flour into circulation. It is customary in this country to store flour in sacks, and, apart from the risk of deterioration of the flour, it would be extremely difficult to keep it entirely free from vermin over such a long period as twelve months without moving the sacks periodically. The problem of handling mass quantities of sacks would prove expensive and unsatisfactory.

In considering this problem of storage it is important not to lose sight of the fact that the material must be changed periodically. Wheat can be kept in good condition by turning over or by aerating, but it would also be desirable to replace it completely from time to time.

If we assume that a supply equivalent to two months' production of a mill is held in reserve stock then if grain is taken out and replaced at the rate of 10 per cent. of the mill capacity, the whole reserve store would be changed in twenty months, and this is probably the rate at which reserve grain would be taken up by a mill. With grain this could be done very simply even though the silo might be placed half a mile away from the mill.

If the reserve stock was held completely in the form of flour and changed at the same rate, it would require storing over anything from one to two years, and this involves an extremely difficult technical problem.

The big advantage of storing flour is that it can be milled and distributed into centres of population where it would be required in case of emergency, but based on the experience during the last war, it is fairly certain that in case of emergency stocks would be used in a form that would make them go further than is the case in time of peace. The extraction during the last war was gradually increased, and if the flour is already milled some mixing process would be required to spread it out, and even then it could not be made to go as far as if the emergency stock was in the form of grain.

Vulnerability.

The location of the granaries from the point of view of vulnerability is of some importance, and suggestions have been made that reserve granaries should be built underground, and that reserve grain should be stored away from the flour mills.

Although granaries are by nature bulky buildings, there seems to be no more reason why they should be hidden than any other type of building.

It is not essential that a reserve granary should be attached to a mill, but it is extremely desirable that it should be within reach of the mill by means of band conveyors, so that a slow and steady stream can be passed from the mill silo to the reserve store and back again. These connecting conveyors need only be very small, compared with the grain-handling plant for the mill, because the mill intake plant and existing stores would be used for all normal commercial operations, and only selected wheats need be sent to reserve store in a stream equivalent to, say, 10 per cent. of the mill throughput.

Wooden elevators have been adopted in some cases on the score of economy, but except in very small mills this form of construction would not be a real economy and certainly would not be looked upon as a permanent part of a large mill property.

Concrete is the accepted material for modern silo construction, and from all information available a concrete building with a large number of bin spaces is one of the most resistant to complete destruction that could be devised. It would be extremely difficult completely to destroy a concrete silo, and if the silo is filled with grain destruction appears to be impossible by means of single bombs, and the whole building and grain would be very difficult to destroy. Furthermore, the building is immune from fire.

In parts of Germany many buildings are now being constructed with bomb-proof shelters in their basements, and a concrete silo is considered one of the safest types for this purpose.

Period for which Reserve should be Provided.

This is a matter of high policy which cannot be seriously dealt with in an article of this kind. One can only assume some basis with a view to getting a true perspective of the whole problem. For this purpose the writer is assuming that a reserve storage of two months' imports of foreign wheat would be a reasonable figure upon which to base calculations. If it comes to a question of utilising the normal two months' supply of grain in times of emergency, the use of the grain would be stretched in various ways, and the two months' supply of normal times might mean a four months' supply in times of emergency. Further, it is rather improbable that supplies would be cut off altogether; if so, the position would in a short time be very serious indeed, and any scheme for national emergency, however well conceived, might prove totally inadequate.

Assuming a reserve supply of two months' consumption of foreign grain, then stores are required for approximately 1,000,000 tons of grain.

To construct ordinary grain silos for the accommodation of this grain requires £5,000,000, and to supply the grain would require an expenditure of approximately £6,000,000, making a total capital outlay of £11,000,000.

The annual charge for interest, depreciation, maintenance and operating costs, would be approximately £800,000, and making allowance for all contingencies it is safe to say that 6d. on each sack of flour consumed will pay all the charges on two months' supply of foreign wheat, and this may be accepted as an insurance charge which must be paid in some form by the consumer.

Methods of Operating.

In all reports or schemes there have been suggestions that the Government should purchase and own the grain, but there is much to be said for the miller and grain dealer obtaining grain by the normal methods practiced and so gradually accumulating a reserve with the least disturbance to the market conditions. This would allow of the miller selecting the most suitable type of grain for storage and would leave him responsible for utilising the grain in his mill when the proper time arrives.

Whether the Government should directly subsidise the cost of storing the grain or whether the cost should be added to each sack of flour as in the case of the Home-grown Wheat Act, is a matter with which the writer is unable to deal, but the annual cost of financing a two months' supply is not a large amount in relation to the unit of population.

Grain other than Wheat.

At the present time there is a tendency for public silos to be used to a lesser extent than they were at one time owing to the fact that private silos have been built to accommodate millers' own supplies.

It might be possible to maintain a reserve of maize, oats, etc., which are not used for human consumption, in such port stores, but as there are certain difficulties about retaining these grains for long periods the matter would require very special consideration.

The general trend of this article has been to deal with the reserve of wheat for human consumption and not to consider the wide question of supplies for cattle.

Transport.

The greatest economy of transport is achieved by having the stores near the mill where grain can be put in and taken out to suit the convenience of the miller.

It appears essential to change grain over long periods, and in considering the convenience and costs of buildings and plants of this kind, it is possible to assume that the reserve will be stored in an annex silo. This annex can be kept fairly uniformly full, and an allowance of 10 per cent. empty space would as a general rule be quite sufficient to provide for taking in and turning over and loading out grain.

The transport to and from the silo annex need not be in much volume; most of the existing ship discharging plants can be used for discharging into existing silos, and then the grain can be transferred to the annex at a low volume and would be completely secondary to the main flow of grain to the mill.

For these reasons the cost per unit capacity would be much less than in an operating silo.

Dryers might be useful for exceptional conditions, but suitable ventilation can be provided in the storage granary, and in any case good dry wheat would be selected for storing over long periods.

Inferences.

In an article of this kind it is neither possible nor desirable to draw definite conclusions based on information which though correct so far as it goes does not pretend to be exhaustive. In spite of all efforts to obtain a purely objective outlook, there is a great risk of any conclusion being biased by an individual's own interests or predilections.

Leaving personal views out of the matter altogether, the following inferences appear to stand out fairly clearly:—

1. Emergencies may occur in one section of the country and not in others; consequently, first-line reserves ought to be widely distributed and probably stored in relatively small quantities.

2. First-line reserves need not be in one form only or held by one class of person. Bakers, merchants and millers might all be called upon for this purpose.

3. The very first line after the householder is the baker, and it would appear reasonable that some reserve should be retained in such a form that it is available to the bakers immediately an emergency occurs in any district. Such reserves

Reserve Grain Supplies for National Emergency—continued

might preferably be widely distributed in small quantities, and for this purpose it would be reasonable to assume that a week's normal consumption might be earmarked as a reserve for use in each district.

4. Centralised reserves of flour would be desirable in more densely populated areas. Such reserves might be in larger single volumes than the bakers' stocks. A reserve equal to about two weeks' consumption for the whole country would give a large measure of confidence, and this reserve should be capable of being transferred from one district to another in case of emergency.

5. A reserve of foreign grain appears to be the only effective way of providing the main foundation for any continued emergency, and sufficient stocks for two months' consumption could easily be held. This would naturally be distributed in stores in different parts of the country:—(a) Country mills; (b) town mills; (c) port mills; (d) public silos.

6. The Wheat Act of 1932 is the one tangible contribution towards additional supplies in the country, and as a result during certain periods of the year there is a considerable extra reserve of home-grown wheat. Provision might be made for distributing this home-grown wheat more uniformly over the whole year, either by storing on the farm in stacks, or in silos or at the mill.

The collective results would provide a flexible emergency reserve in a satisfactory manner for meeting instantaneous requirements with a suitable reserve for pressure over a more extended period. At the same time, nothing need be done seriously to disturb normal peace-time commercial conditions.

A scheme operated by the millers themselves undoubtedly has much to be said for it, and appears preferable to a Government grain buying and storage scheme with its inevitable dislocation of the grain markets and risk of serious price variations. Furthermore, the scheme could be worked with a minimum of inconvenience to the miller and without the necessity for creating an extensive Government organisation.

Irish Harbour Matters

New Atlantic Line to call at Dublin.

THE formation of the Atlantic Line, a company registered under the title, Atlantic Steamship Navigation, Ltd., to operate a new passenger and cargo service between Liverpool and New York, via Dun Laoghaire, was referred to by Major Hollwey at a meeting of the Dublin Port and Docks Board. He understood that the company had placed a contract for the construction of two 30,000-ton passenger liners for the North Atlantic service with Vickers Armstrong Ltd., Barrow-in-Furness. The vessels will have an overall length of 725 feet, a breadth of 90 feet, and a speed of about 22 knots. There will be accommodation for 500 first-class and 1,000 tourist passengers, and regular sailings from Liverpool and New York, via Dun Laoghaire, Dublin. The registered offices of the Line are in London, and the head offices will be in Liverpool.

The Chairman (Mr. C. M. O'Kelly) said that if the service came to anything it would be cordially welcomed by the Board.

Proposed New Liffey Bridge.

The replacement of the present Metal Bridge by a new bridge across the River Liffey has been mentioned in a report to the Municipal Council by the Acting City Manager (Mr. Keane). The report points out that the Port and Docks Board is the authority which would be responsible for the erection of a new bridge, and mentions that correspondence has passed between the Corporation and the Board on the matter. They discussed the extension of time for building the transporter bridge authorised by the Act of 1929, and it appears that if that bridge were to be built, the plans would require to be re-cast in view of the great advances made recently in the design and construction of such bridges. Advantage should be taken of these advances in the construction of any such bridge in Dublin.

New legislation would be required if the transporter bridge is to be built on altered plans. The questions referred to could be the subject of friendly discussions, and if agreement was reached advantage could be taken of the new legislation by having incorporated in it provisions which would remove all doubts as to the power of the Board to borrow on the security of the bridge rate the full amount necessary for the reconstruction of the Metal Bridge, free from the restriction of Section 4 of the Act of 1929.

The Acting City Manager had been notified that on 30th July last, the Port and Docks Board decided to postpone the consideration of the erection of a new bridge over the Liffey, east of Butt Bridge, until an outline scheme under the Town Planning Act is available. The construction of a new bridge without providing suitable exits at either end would be unjustified.

Accordingly, if the Council desire to speed the proposed Metal Bridge reconstruction scheme, the Town Planning Committee should be asked to take up without delay the replanning of the adjoining district.

Alternative to Transporter Bridge.

Arising out of this report, at a meeting of the Dublin Port and Docks Board on 8th October, Mr. P. McGrath said that the site originally selected for the transporter bridge was too near Butt Bridge. As an alternative, he suggested the building of a bridge from East Wall Road to Thorncastle Street, Ringsend. In order to have the matter discussed, he handed in a notice of motion proposing that an uplift bridge be erected across the Liffey between East Wall Road and Thorncastle Street.

Alluding to the success of the Anchor Line calls to Dublin, Mr. McGrath said that the venture had justified itself—an additional sailing having to be arranged owing to the heavy bookings. In addition, passengers by these liners spoke in complimentary terms of the landing accommodation provided by the Board. It was due to the business acumen of the Anchor Line that the port had been opened to passenger traffic on the Atlantic route.

The port returns for the past nine months, he said, were most satisfactory, showing as they did an increase of over £5,000 in excess of the same period last year. The growth of overseas passenger traffic was remarkable. In 1933 one liner called, in 1934 six, in 1935 ten, and this year to date 29. In 1933 the tonnage was 4,500; this year it was 283,626. In 1933 passengers totalled 500; this year 8,000. Next year a well-known Line intended calling to Dublin with cruising liners so that they might expect a further increase in their receipts.

Mr. E. H. Bailey, Secretary, stated that the register tonnage which entered the Port of Dublin during the nine months ended 25th September last (on which tonnage dues were paid), as compared with the corresponding period last year, was:—

Total foreign trade—722,623 tons; increase, 64,436 tons. Tonnage dues collected, £22,482 4s. 2d.; decrease, £566 11s. Number of vessels—478; decrease 32.

Total cross-channel and coastwise—1,444,839 tons; increase 175,400 tons. Tonnage dues collected, £38,323 9s. 11d.; increase £4,741 17s. 8d. Number of vessels—3,598; increase 263.

The total register tonnage was 2,167,462, an increase of 239,836 tons, while tonnage dues collected amounted to £60,805 14s. 1d., an increase of £4,175 6s. 8d.

Dues on goods collected were: Inwards, £49,910 11s. 7d.; outwards, £17,200 15s. 2d. Total: £67,111 6s. 9d; increase £1,985 18s. 7d.

Belfast Harbour Commissioners visit Dublin.

A cordial reception was given to the Belfast Harbour Commissioners, who accepted the invitation of the Chairman and members of the Dublin Port and Docks Board, who were entertained by the Commissioners in Belfast last June, on October 9th.

After inspecting a model of the harbour and other objects and documents relative to the Port at the Ballast Office, the visitors were taken on a tour of inspection of the Custom House Docks, the tobacco warehouse, the vaults, and the new bridges at the docks entrance.

After luncheon the party drove to the North Wall quay extension, where a Dublin Port and Docks Board dredger was pumping sand—dredged from the river bed—into a space which is being reclaimed for new warehouses for the overseas trade. They went on, past the oil companies' storage plants on the Alexandra Road, to the site of the new Irish oil refinery.

On this 60-acre site men were engaged in levelling operations, and a big steam shovel was moving sand from the hills formed by the pumps which had brought the "spoil" from the dredgers.

Afterwards a visit was paid to the Dublin Port Milling Company's works, where officials of the company conducted the visitors around the starch extraction plant, and explained its operation.

In the new "liner hall," built to facilitate the foreign passenger traffic now passing through the Port of Dublin, tea was served, and before catching their train for Belfast the representatives of the Belfast Harbour Commissioners visited the Mansion House, where the Lord Mayor held a reception in their honour. All of them spoke with appreciation of the work of the Dublin Port and Docks Board.